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TRANSACTIONS

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THE CLASSIFICATION OF THE DECTICINAE HITHERTO INCLUDED IN *PLATYCLEIS* FIEB. OR *METRIOPTERA* WESM. (ORTHOPTERA, SALTATORIA)

By F. E. ZEUNER, Ph.D., F.Z.S.

Communicated by Dr. B. P. UVAROV, F.R.E.S.

Read 6th November, 1940.

WITH 45 FIGURES IN THE TEXT.

INTRODUCTION.

FOR many years the classification of the DECTICINAE hitherto assigned to the collective genus *Metrioptera* Wesm. (or *Platycleis* Fieb.) has been in a most unsatisfactory state. The number of species included has risen steadily. It amounts to 103 at the present moment (including subspecies and forms, 122). The number of generic, specific and subspecific names involved, including synonyms, is 209.

Such a large number of forms cannot be revised without studying representatives of the majority of the described species, and it is evident that the main reason why a revision has not been carried out before, is that few collections afford the material required. Fortunately, the collection of the British Museum (Natural History) contains 74 of the described species, and it is on these that the present revision is largely based. I have further had an opportunity of studying the collection of the Zoological Museum of Berlin University, and a few types are contained in my own collection. Some important specimens were received on loan from the Museum d'Histoire Naturelle, Paris, and from Dr. E. Morales Agacino, Barcelona. The number of species which I have seen thus amounts to 83 out of 103.

It is a pleasure for me to acknowledge the co-operation which I have enjoyed of my friend, Dr. B. P. Uvarov. He has procured a large amount of material for examination and supplied essential publications which otherwise would hardly have been obtainable. It also may be mentioned that the British Museum collection owes its high standard of completeness very largely to Dr. Uvarov's

unceasing efforts to acquire species not represented. I am further greatly obliged to Dr. L. Chopard, Paris, for lending valuable specimens, to Prof. W. Ramme, Berlin, for permitting me to study the Berlin collection and to Dr. E. Morales Agacino, Barcelona, for lending Spanish material, including a type.

Although it has been claimed repeatedly that reliable subdivisions cannot be established in the group under consideration, it appears to me that at least several good genera can be split off without difficulty. Other divisions are less sharply defined and, occasionally, species occur which are intermediate in certain characters. This, however, happens in almost every large group of insects and does not justify the preservation of comprehensive and obviously heterogeneous genera. Everyone who reads Hebard's diagnosis of *Metrioptera* (1939) will admit that this is a heterogeneous group.

Only once, however, has it happened that a species originally described as a "*Metrioptera*" had to be removed to a different tribe of the Decticinae. This is *Miramiola pusilla* (Mir.). According to Uvarov, it has to be placed in the Ctenodectici. Its synonymy is as follows :—

1927. *Metrioptera pusilla* Miram, *C.R. Acad. Sci. URSS* **1927** : 167, fig. 4.
1928. *Metrioptera pusilla* Miram : Miram, *C.R. Acad. Sci. URSS* **1928** : 293, figs. 1, 2.
1931. *Anterastes pusillus* Mir. : Tarbinsky, *Bull. Inst. contr. Pests Diseases* **1** : 159.
1939. *Miramiola* Uvarov, *Ann. Mag. nat. Hist.* (11) **4** : 135. (For *Metrioptera pusilla* Mir.)

Again, only once has a species evidently belonging to this group been placed in a new genus, *Eumetrioptera* Miram (p. 39).

The detailed classification introduced in the present paper has necessitated the erection of 13 new genera, making 16 genera in all, including *Platycleis* Fieb., *Metrioptera* Wesm., and *Eumetrioptera* Mir. Four new species and four new subspecies are described, and six new synonyms established.

History of Classification.

In the earliest descriptions, the species under consideration were usually referred to *Gryllus* L. or *Locusta* L. Since Serville's time, however, their close association with the newly established genus *Decticus* Serv. (1831) was generally recognised. In 1838, Serville (*Hist. nat. Orth.* : 483–491) subdivided *Decticus* into a division with long wings and a pronotum with distinct lateral keels (containing *verrucivorus* L., *albifrons* Fabr., *monspeliensis* Serv., *intermedius* Serv., *griseus* Fabr., *tessellatus* Charp.) and another with shortened wings and less pronounced lateral keels of the pronotum (comprising *brachypterus* L., *abbreviatus* Serv., and *brevipennis* Charp. syn. *roeselii* Hagb.). Of these species, the first three are still included in *Decticus* Serv., but the others were later transferred to *Metrioptera* Wesm. or *Platycleis* Fieb. It is noteworthy that Serville regarded the fully-winged species *intermedius*, *griseus* and *tessellatus* as more closely related to *Decticus verrucivorus* (L.), and in spite of the confusion caused by later authors who began to merge heterogeneous elements into one comprehensive genus called *Platycleis* or *Metrioptera*, this distinction of Serville still holds good.

The next important step towards clearing the relationships of the species in question was undertaken by Wesmael (1838). He erected three subgenera of *Decticus* Serv., of which the first (*Chelidoptera* Wesm.) is identical with Serville's division I and therefore has to retain the name of *Decticus*. The second (*Metrioptera* Wesm.) contains *brachyptera* L. only; it corresponds to Serville's division II. The third (*Pholidoptera* Wesm.) was erected for *aptera* Fabr. and is of no interest in this context.

Thus, the situation was perfectly clear at that time, the long-winged species forming *Decticus* Serv. (with *verrucivorus* L.), the short-winged *Metrioptera* Wesm. (genotype *brachyptera* L.).

In 1852, however, Fieber (in Kelch, *Orth. Oberschles.* : 2, 5) established a new genus *Platycleis* to include 1. *griseus* F., 2. *bicolor* Phil., 3. *brevipennis* Charp., 4. *brachypterus* " F." In other words, he added to Serville's division II one of the long-winged species of division I. From his description of *Decticus* and *Platycleis* respectively it is evident that he aimed at defining *Decticus* Serv. more precisely, and he discovered that *grisea* Fabr. (with its allies) is, in several respects, more closely related to Serville's division II than to *Decticus verrucivorus* (L.). The original diagnosis of *Platycleis* Fieb. appears to be based mainly on the macropterous species (i.e. *grisea* Fabr., which moreover holds first place in the lists both in 1852 and 1853), since he merely refers to an *occasional* reduction of the wings. A genotype was not expressly designated by Fieber, but in view of the facts it is logical to regard *grisea* Fabr. as the genotype of *Platycleis* Fieb. (see also p. 22).

Since 1852, no further generic name was proposed to cover species of the group, until in 1935 the monospecific genus *Eumetrioptera* Mir. was introduced.

In his *Synopsis* (1853, *Lotos, Prag*, **3** : 90), Fieber intended to subdivide *Platycleis* into a group α with the disc of the pronotum triangularly depressed (modern genera *Platycleis, Montana, Tessellana* and others) and a group β not exhibiting this character. Unfortunately, he forgot to insert the second subdivision, and his species run through from those with a concave disc to those with a convex one.

Fischer's *Orthoptera Europaea* (1853) brought the definite separation of *Decticus* Serv. from *Platycleis* Fieb. and *Metrioptera* Wesm. He found that the anterior tibia of *Decticus* is armed with four spines, whilst there are three in *Platycleis* and *Metrioptera*. He still, however, regarded *Platycleis* Fieb. as a subgenus of *Decticus* Serv., but within this subgenus he introduced a division, group *a* comprising the macropterous species (with *grisea* Fabr.), group *b* the brachypterous species (with *brachyptera* L.). He identified group *b* with *Metrioptera* Wesm., but owing to some kind of lapsus, wrote " *Metriophora* Wesm." instead.

At that time, therefore, three names were available, i.e. :—

Decticus Serv. (with *verrucivorus* L.)
Platycleis Fieb. (diagnosis based on *grisea* Fabr.)
Metrioptera Wesm. (genotype *brachyptera* L.)

For the following 50 years, *Platycleis* Fieb. was accepted quite generally to cover *Metrioptera* as well, and under the influence of Brunner v. Wattenwyl's classification, the latter name was almost forgotten.

In 1874, Herman (*Verh. zool. bot. Ges. Wien* **24** : 207) suggested that *intermedia* Serv. be regarded as the genotype of *Platycleis* Fieb., which is the first species in Serville's division I with three spines on the anterior tibia. This species, however, was not included in Fieber's original list of the species of *Platycleis* (1852) and, therefore, cannot be accepted as genotype.

Brunner, in the *Prodromus der Europäischen Orthopteren* (1882), accepted *Platycleis* in Fieber's sense, comprising the macropterous species as well as the brachypterous. His key to the species, however, supplied certain well-defined subdivisions which, in the present paper, are raised to generic rank. Brunner used the female subgenital plate and the ovipositor as diagnostic criteria, which indeed they are. His major groups are as follows :—

1. Female subgenital plate longitudinally sulcate.
   2. Ovipositor weakly and regularly curved, longer than pronotum. Elytra fully developed. (Now *Platycleis* Fieb.)
   2. 2. Ovipositor short, angularly bent. Elytra long or short, with a line of black rhomboidal spots. (Now *Tessellana* gen. n.)
1. 1. Female subgenital plate flat or carinate.
   2. Ovipositor almost straight, twice as long as pronotum.
      3. Macropterous forms. (Now *Montana* gen. n.)
      3. 3. Wings reduced. (Now various genera, including *Metrioptera* Wesm.)
   2. 2. Ovipositor short, angularly bent. (Now *Roeseliana* gen. n., *Bicolorana* gen. n.)

After Brunner's *Prodromus* was published, the number of species increased rapidly. Many of these new forms are rare and difficult to obtain, so that it was almost impossible to base improvements of the classification on an examination of a large number of species. Consequently, the impression gained ground that, although some well-defined groups of species appeared to exist, there were so many transitional forms that it was not advisable to split off new genera.

A catalogue of the species was given by Kirby (1906, *Syn. Cat. Orth. Brit. Mus.* **2** : 203). By then the number had risen to 45. For unknown reasons, he revived the name *Chelidoptera* Wesm. (a synonym of *Decticus* Serv., see p. 22) and substituted it for *Platycleis* Fieb. and *Metrioptera* Wesm. Fortunately, nobody followed him, and the two latter names continued in use.

In 1908, Caudell (*Gen. Ins.* **72** : 30) took *Metrioptera* Wesm. for *Platycleis* Fieb. as a name for the collective genus under consideration, and he noted *brachyptera* L. as the genotype. If one accepts the entire assemblage of species as one homogeneous genus, *Metrioptera* would be the valid name, being considerably earlier than *Platycleis* Fieb. From that time on, therefore, most authors abandoned *Platycleis* in favour of *Metrioptera*. Caudell counted 48 species.

In 1924, Uvarov (*Trans. ent. Soc. Lond.* **1923** : 528) added to the list a further 19 species described since Caudell (1908) and said that the conception of the genus was very broad, making it somewhat heterogeneous and not very natural and that a thorough revision was badly wanted.

In 1927, Ramme (*Eos* **3** : 136) restricted *Platycleis* Fieb. to the macropterous species *grisea*, *intermedia*, and seven others. He still regarded Herman's genotype as correctly selected. The remainder of the species was combined in the collective genus *Metrioptera*, but Ramme left the question open as to whether the smaller macropterous species now constituting the genera *Montana* gen. n. and *Tessellana* gen. n. should be classified as *Platycleis* or *Metrioptera*. In all, about 80 species were known in 1927.

Three years later, Tarbinsky (1930, *Zool. Anz.* **91** : 327) remarked that the characters of the species of *Metrioptera* are repeated in all possible combinations. Though some more or less distinct groups stand out, they cannot, in his view, be regarded as more than subgenera, or minor groups of species. This impression was partly due to Ramme's diagnosis of *Platycleis* Fieb., which admittedly is vague and not exhaustive. It is not the diagnosis, however, but the natural unit itself that matters, and the examination of a large number of species makes it abundantly clear that *Platycleis* is most easily separated from the remainder. The other obvious groups, such as that around *montana* Koll., which are quoted by Tarbinsky, have to be made separate genera which, in spite of their close affinities to one another, are on the whole well definable.

The latest remarks bearing on the question of subdividing *Metrioptera* are by Hebard (1939, *Trans. Amer. ent. Soc.* **65** : 175). Having studied not more than 28 species out of a total of 103, he came to the conclusion that, though certain aberrant species may possibly require subgeneric, or even generic, separation, splitting into other genera appeared to be less feasible than Uvarov has intimated.

A study of 83 species of the group, carried on at intervals for ten years, and perusal of the literature dealing with the subject, have convinced me that division into new genera is not only possible but necessary. The classification here proposed cannot be final, and I frankly admit that some of the genera might be composite. In some cases I have refrained from naming fairly well-defined groups in the hope that future discoveries will elucidate and settle their systematic position.

The species have not been fully revised. Some names have been retained for the time being although there is reason to suppose that they are pure synonyms of others. On the other hand, a few new species have been included.

Phylogeny and Affinities of the Genera.

Fossil Evidence. Platycleis, Metrioptera and the related genera described in this paper are most closely allied to *Decticus* Serv. and *Pholidoptera* Wesm. The former genus is among the most primitive Decticinae, and a closely allied form, *Eodecticus maculatus* Pgr., occurs in the Lower Miocene of Radoboj, Croatia (for palaeontology of the Decticinae, compare Zeuner, 1939, *Foss. Orth. Ensifera*). In the same strata a true *Platycleis* occurs, *P. pongráczi* Znr., a very large species with elytra reminiscent of *P. intermedia* (Serv.). In the Upper Miocene of south-west Germany another species, *P. speciosa* (Heer), has been found which is equally among the largest of the genus, but the elytra of which resemble those of *P. grisea* (Fabr.) (Zeuner, 1932, *Beitr. naturw. Erforsch. Badens* : 144–152). It is evident, therefore, that the genus *Platycleis* separated from *Decticus* before the Miocene.

Elytra. Among the genera included in this paper, normally macropterous species dominate in *Montana* and *Platycleis*. They further occur in *Tessellana* and *Incertana*, and in *Sepiana* (*?S. bodenheimeri; Platycleis*-type).

Occasionally, macropterous individuals occur in *Metrioptera, Bicolorana, Roeseliana*, and *Sphagniana*. Their macropterism has been called secondary, but there is reason to believe that it is not so and that these fully developed elytra are atavistic, exhibiting the main features of the elytra of the normally macropterous ancestors of these species (Zeuner, 1929, *Mitt. zool. Mus. Berlin* **15** : 222–224). The venation of such exceptionally macropterous elytra resembles that of *Decticus verrucivorus* in the number of branches as well as in the relative length of the sector radii and the proportion of total length to width. The curiously curved fore margin of the elytra, however, is a peculiarity not met with in *Decticus*. It is due to a reduction of the precostal area. The venation of these forms evidently had not advanced beyond the stage of *D. verrucivorus* towards an improvement of the flying powers, when reduction of the wings set in. It is probable, therefore, that (judging by the degree of specialisation of the elytra) *Metrioptera* and *Sphagniana, Bicolorana* and *Roeseliana* are one or two stocks descended from certain *Decticus*-like ancestors while the power of flight was gradually reduced.

In *Montana, Platycleis, Tessellana* and *Incertana*, the specialisation of the elytra followed a very different course. On the whole, their elytra became longer

and more slender, with the result that flying powers were improved. Elongation is due to a lengthening of the *apical* portion of the elytron (Zeuner, 1929, *loc. cit.* : 204–207). Correspondingly, the sector radii is very long, attaining in some species of *Platycleis* over two-thirds of the length of the elytron. This tendency is most pronounced in *Platycleis*. In some species of this genus the elytra extend far beyond the knee of the hind femora which, themselves, are of a considerable size.

It is interesting to observe the influence, on shape and venation, of incipient reduction in length. Such reduction is taking place, or has done so, in several species of *Platycleis*, and the rules according to which the shortening is effected throw light on similar processes in other genera. The two outstanding rules are : (1) the reduction begins with a shortening of the distal portion of the elytron, and (2) the distal portion becomes narrower, so that a more or less pointed elytron is produced.

Considering *Montana* gen. n. from this point of view, one finds that most species show, to a varying degree, a narrowing and a reduction in length of the distal portion of the elytron. Only the elytron of *M. eversmanni* is still comparable with that of a *Platycleis* (especially *P. grisea*); in *M. montana* the pointed apex usually is fairly pronounced and (increasingly) more so in *M. stricta*, *carpetana* and *tomini*. A curious feature is the fusion of Rs and M frequently observed in *Montana* (Zeuner, 1929, *loc. cit.* : 206). It proves that the process of narrowing of the distal portion leads to what one might call a " compression " of the venation. It cannot, therefore, be a mere consequence of the process of shortening and must be independent of it. In other genera (*Roeseliana* for instance) shortening does take place without a narrowing of the distal portion.

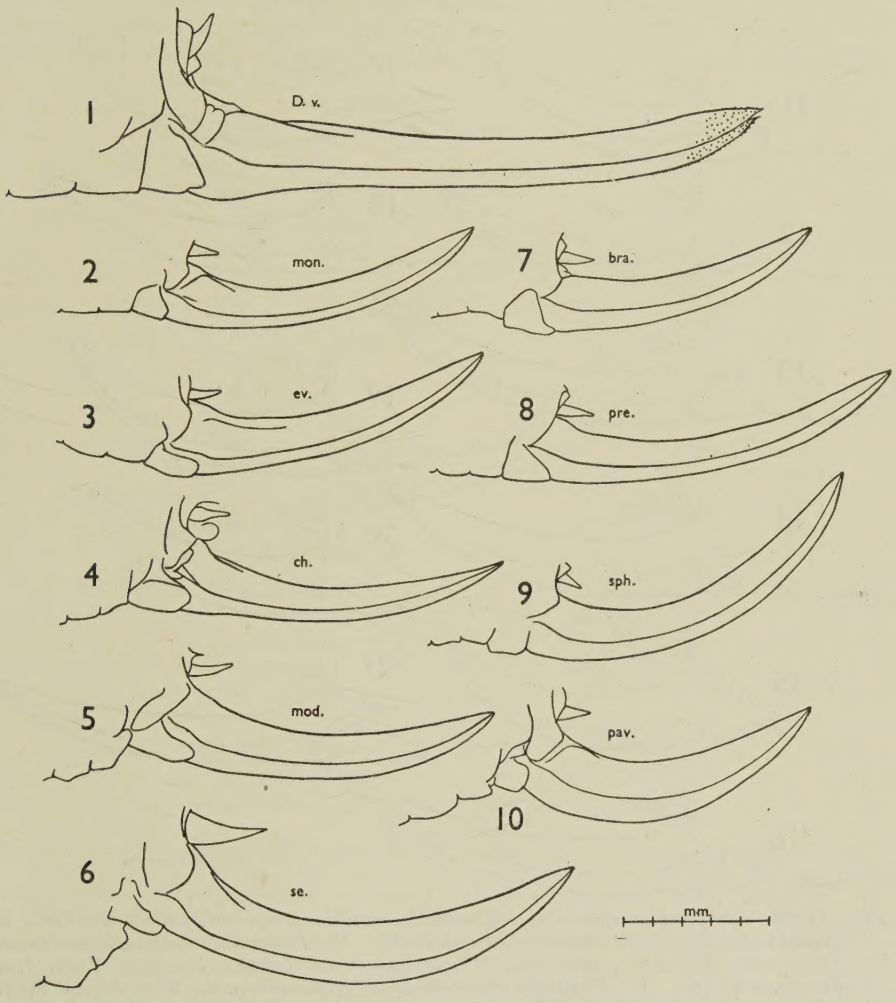
The numerous species of *Montana* thus provide examples for the almost complete reduction of the elytra, starting from a fully developed elytron of the *Platycleis*-type. It will be seen later on, however, that in other respects *Montana* is more closely related to *Decticus* than to *Platycleis*.

In *Tessellana*, the narrowing and reduction in length of the apical portion of the elytron is even more pronounced than in *Montana*. The three species known to me, *T. tessellata*, *vittata* and *nigrosignata*, may be arranged almost in a line from this point of view. In *T. nigrosignata* the sector radii and the portion of the elytron traversed by it have disappeared entirely. Unlike *Montana*, *Tessellana* approaches *Platycleis* in the structure of the female genital apparatus. *Incertana*, closely allied to *Tessellana*, contains one species with elytra of the *Platycleis*-type (*I. persica*) and another (*I. incerta*) in which the elytra are reduced as much as in *Tessellana nigrosignata*. In shape and venation they offer a parallel to the conditions observed in *Tessellana*.

Thus, if one restricts considerations to the elytron, one may say that, from an ancestral type very similar to *Decticus verrucivorus*, there developed a more elongate and slender elytron (*Platycleis*-type) which, in turn, has been reduced in size on four independent lines, in each of the genera *Montana*, *Platycleis*, *Tessellana* and *Incertana*. In addition, a broad but otherwise little different type of elytron developed from the *D. verrucivorus*-type and was subsequently reduced, but the apex in the members of this group tends to remain broad (*Metrioptera*, *Sphagniana*, *Bicolorana*, *Roeseliana*).

Coloration. The last-named group (*Metrioptera*, etc.) also preserved, more or less completely, the dark brown and green type of coloration of *Decticus verrucivorus*, though the pattern tends to lose the spots which are so numerous in *Decticus*.

In *Montana*, the *Decticus verrucivorus*-type of coloration is still observed in *M. montana*. Other species of the same genus, such as *M. decticiformis* and *M. carpetana*, remind one rather of *Decticus albifrons* or *Medecticus* sp., which are yellowish-brown, but the irregular spotting so characteristic of *Decticus* is

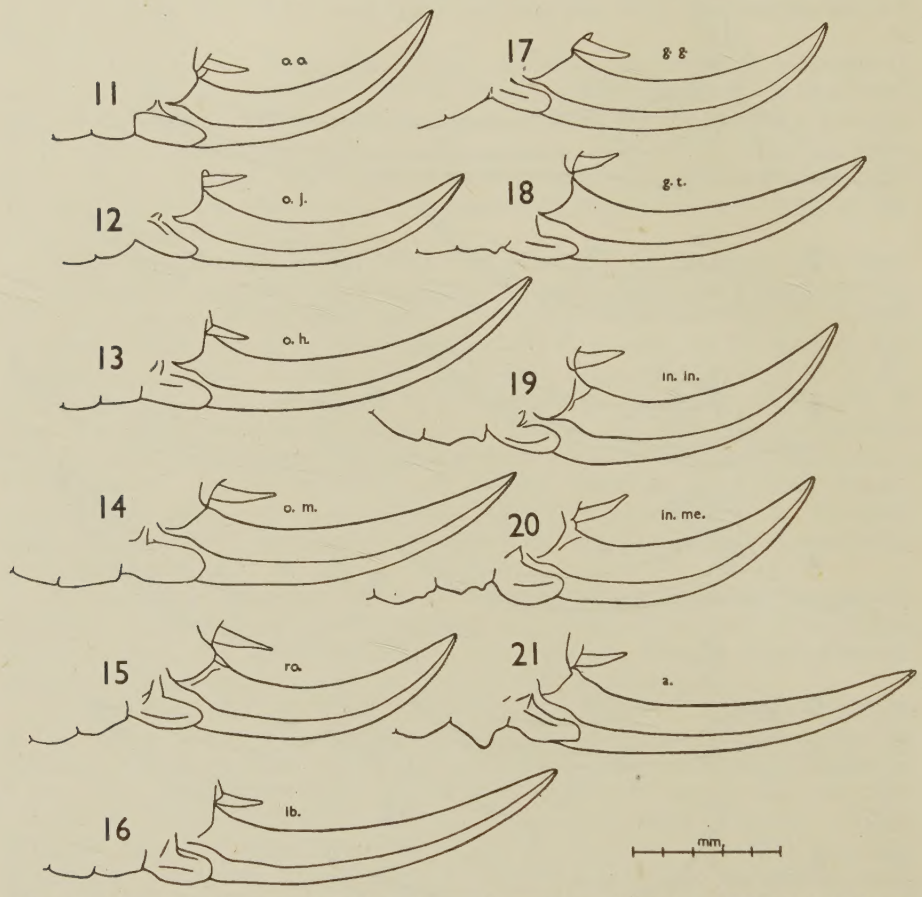


FIGS. 1–10.—Ovipositors and sixth and seventh sternites, all drawn to the same scale. *Decticus*- and *Platycleis*-types. 1. *Decticus verrucivorus* (L.), from Berlin. 2. *Montana montana* (Koll.), from Austria. 3. *Montana eversmanni* (Kitt.), from Omsk. 4. *Parnassiana chelmos* sp. n., from Mount Chelmos, Greece. 5. *Sepiana modesta*, from Austria. 6. *Sepiana sepium*, from south France. 7. *Metrioptera brachyptera* (L.), from Sweden. 8. *Metrioptera prenjica* (Burr), from Prenj Planina, cotype. 9. *Sphagniana sphagnorum* (Walk.), from Hudson Bay, paratype. 10. *Eumetrioptera pavlovskyi* Mir., from Turkestan, paratype.

present also. It is not confined to the space between R and M and covers the space between M and Cu as well.

In *Platycleis*, green coloration is practically non-existent (larvae, freshly moulted specimens, and very rare aberrant adults (f. *mirabilis* Rme.) may show

it). Instead, a dull strawy-brown or brownish-grey prevails. The pattern of the elytra is chiefly confined to the radio-median space, but not entirely, and the markings are dull. On the cross-veins in the radio-median space, more or less rounded whitish spots appear.



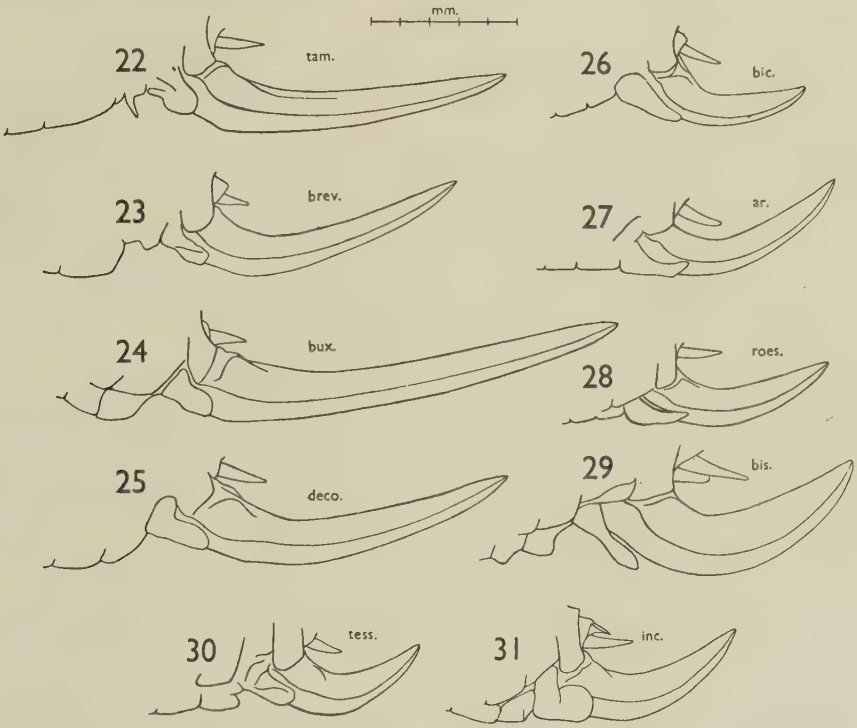
Figs. 11–21.—Ovipositors and sixth and seventh sternites of species of *Platycleis* Fieb., all drawn to the same scale as figs. 1–10 and 22–33. 11. *Platycleis occidentalis occidentalis* Znr., from Tübingen, holotype. 12. *Platycleis occidentalis jerseyana* Znr., from Jersey, holotype. 13. *Platycleis occidentalis hispanica* subsp. n., from central Spain, holotype. 14. *Platycleis occidentalis maura* subsp. n., from Morocco, holotype. 15. *Platycleis romana* Rme., from Rome. 16. *Platycleis iberica* sp. n., from Spain, holotype. 17. *Platycleis grisea grisea* (Fabr.), from Portofino, Liguria, Italy. 18. *Platycleis grisea transiens* subsp. n., from Mt. Chelmos, Greece, holotype. 19. *Platycleis intermedia intermedia* (Serv.), from Alpes Maritimes. 20. *Platycleis intermedia mesopotamica* (Rme.), from Mossul, Mesopotamia. 21. *Platycleis affinis* Fieb., from Transcaucasia.

This coloration and pattern is most accentuated in *Tessellana*, in which genus the markings are practically confined to the radio-median space, almost black, and separated by oblique white cross-veins.

Coloration and pattern, therefore, confirm the existence of two main groups of genera, one of which might be called the *Metrioptera*-stock. The other com-

prises the *Platycleis*-stock plus *Montana*. The latter genus has to be kept apart for reasons discussed below. *Montana* is closest to *Decticus* in pattern and coloration, *Platycleis* more removed, and *Tessellana* highly specialised.

Spines of the anterior tibia. As regards organs other than the elytra, there is again evidence of higher organisation in the *Platycleis* and *Metrioptera* stocks, compared with *Decticus*. The number of spines on the upperside of the anterior tibia has been widely used in classification. Their number is normally



FIGS. 22–31.—Ovipositors of the *Tessellana*-type, with sixth and seventh sternites, all drawn to the same scale as figs. 1–21 and 32–33. 22. *Semenoviana tamerlana* (Sauss.), from Turkestan. 23. *Sporadiana brevipes* (Uv.), from Smyrna prov., holotype. 24. *Decorana buxtoni* (Uv.), from Palestine, holotype. 25. *Decorana decorata* (Fieb.), from Portugal. 26. *Bicolorana bicolor* (Phil.), from Berlin. 27. *Bicolorana arnoldi* (Rme.), from Bulgaria, paratype. 28. *Roeseliana roeselii* (Hgb.), from the Jura Mts. near Basle. 29. *Roeseliana bispina* (Bol.), from Anatolia. 30. *Tessellana tessellata* (Charp.), from Spain. 31. *Incertana incerta* (Br. W.), from Kephalonia.

four in *Decticus*, and three in the *Platycleis* and *Metrioptera* stocks, as well as in *Montana* and allies, and in *Pholidoptera*. Though the character is sound on the whole, individual variations may be observed. In *Decticus* specimens occur with from three to five spines, and in *Platycleis grisea* I have once observed four spines instead of three. The higher number of spines appears to be primitive, since the position of the three spines in *Platycleis* and allies suggests that the difference in number is due to the disappearance of the third spine of *Decticus*.

Ovipositor. The female genital apparatus of *Platycleis* and allies exhibits an amazing number of modifications, chiefly in the subgenital plate, the sixth

and seventh sternites and the ovipositor (figs. 5–31). In the male, the cerci and the last tergite are often specialised.

The ovipositor, in particular, is widely different from that of *Decticus* (fig. 1) in most of the genera: it is compressed laterally, except at the very base. This makes it resemble a knife (fig. 33). It is mostly blackish-brown, with a yellow base. In *Decticus* and other genera, however, the ovipositor is thick, especially in the basal third (fig. 32). Near the base, it is wider than high. This gives it a dagger-like appearance. It is invariably light-coloured, very often with dark edges.

Varieties of the *Decticus*-type of ovipositor occur in most DECTICINAE, whilst the *Platycleis*-type is restricted to the genera discussed in the present paper, with the exception of three, namely *Montana*, *Semenoviana*,[1] and *Parnassiana*.

Although *Montana* resembles *Platycleis* in several respects, its ovipositor is clearly of the *Decticus*-type (fig. 32) and is, moreover, combined with a simple type of subgenital plate. Most species of *Montana* are macropterous and indeed look like small *Decticus*, and the only essential differences between the two genera are that the anterior tibia of *Montana* has three spines instead of four, and that the median carina of the pronotum is not restricted to the metazona in *Decticus*. It is evident that, of all genera considered, *Montana* is more closely related to *Decticus* than any other.

Parnassiana is a brachypterous mountain genus with highly modified male genital apparatus (figs. 34–43). The genital apparatus of the female as well as the general habitus of the species remind one of *Pholidoptera* Wesm., especially of *Ph. cinerea* (Gmel.). The female genitalia of *Pholidoptera* resemble those of *Decticus* more than those of *Platycleis*, and it is conceivable, therefore, that one line of evolution, starting from ancestral *Decticus*, runs to *Pholidoptera*, and that *Parnassiana* is fairly closely allied to this line.

The remaining genera have in common the compressed type of ovipositor described above (*Platycleis*-type). For this reason, one might remove *Montana* and *Parnassiana* (and possibly *Semenoviana*), in order to establish a tribe of Platycleidini, defined by the peculiar ovipositor which does not occur in other DECTICINAE.

In the remaining 13 genera constituting the Platycleidini proper, a great variability may be observed in the shape of the ovipositor and the ventral plates belonging to the genital apparatus.

The ovipositor is either straight or regularly curved right from the base (*Platycleis*, *Eumetrioptera*, *Sepiana*, *Alticolana*, *Squamiana*, *Metrioptera*, *Sphagniana*, figs. 5–21), or sharply recurved at the base and thence tapering rapidly (*Sporadiana*, *Decorana*, *Tessellana*, *Incertana*, *Bicolorana*, *Roeseliana*, also *Semenoviana*, figs. 22–31). If one arranges the genera according to this character, it will be noticed that the two groups thus formed do not agree with those based on structure and coloration of the elytron. The latter arrangement probably is more natural, *i.e.* it reflects more clearly phylogenetic relationship, since the *Tessellana*-type of ovipositor is sometimes found in genera which in many other respects are very closely allied to genera with an ovipositor of the normal *Platycleis*-type. There are, for instance, *Bicolorana* and *Roeseliana*, with a *Tessellana*-ovipositor, very close to *Metrioptera* with its *Platycleis*-ovipositor. Furthermore, *Tessellana* itself is closely related to *Platycleis*.

[1] *Semenoviana* may be regarded as transitional to certain varieties of the *Platycleis*-type.

The shape of the ovipositor thus provides a good generic character, but it appears to be of little phylogenetic value.

The different types of ovipositor must have some biological meaning. Unfortunately, little is known so far of the mode of oviposition in most of the genera. It is, however, known that *Decticus* lays its eggs in the ground, the ovipositor being pressed into the earth more or less vertically, under suitable movements of the valves. *Pholidoptera cinerea* lays its eggs in the pith of elder, very much in the same manner as does *Decticus* in the ground (Cappe de Baillon, 1920, *La Cellule* **31** : 144). The dagger-shaped ovipositor thus appears to be constructed for piercing matter in a vertical direction.

Of all the Platycleidini proper, only *Platycleis grisea* has been studied (Sarra, 1934, *Boll. Lab. Zool. agr. Portici* **28** : 203). This species uses dead stems of herbaceous plants, into which it cuts linear slots through which it reaches the pith or marrow where the eggs are deposited. It is likely that this habit of cutting linear incisions into stems of plants is intimately connected with the knife-like, compressed, structure of the ovipositor of the Platycleidini. Further observations are required to confirm this. The angular *Tessellana*-type is as yet unexplained.

Female subgenital plate. Structures on the sixth and seventh sternites of the female occur so frequently and in genera so widely different that one cannot attach phylogenetic value to them. They often provide generic or specific characters, however.

The structure of the subgenital plate is of greater importance. The simplest type is smooth and broad, with a small terminal excision and sometimes with a median carina. It is found in *Decticus verrucivorus*, *Montana*, *Parnassiana*, *Metrioptera brachyptera* and others, and in *Sphagniana*. This is a striking assemblage of primitive forms. The close relationship of *Decticus*, *Montana* and *Parnassiana* has been demonstrated above on quite different grounds, and among the *Metrioptera*-group of genera, *Metrioptera brachyptera* is the most generalised species. *Sphagniana* is obviously a derivative of *Metrioptera*.

In the *Platycleis*-group, the subgenital plate is, in spite of great variety, always built on the same plan. There are two lobes separated by a longitudinal depression or furrow. If the depression is shallow, a median carina may occur in it. The lobes are sometimes truncate and, in a few rare instances, the whole plate is much reduced in size.

In the *Metrioptera*-group one finds an equally great variety of subgenital plates, but they are built on a plan somewhat different from that of the *Platycleis*-group. The lobes tend to be sharply pointed, and the terminal excision to be triangular. A median carina is frequent, but a furrow most exceptional. In *Metrioptera*, the genotype (*M. brachyptera* L.) shows the simple kind of plate already mentioned. In *M. saussuriana*, the lobes are longer, the excision deeper, and a slight median carina has appeared. In *M. abbreviata* (syn. *M. marqueti*) the lobes are longer than the basal portion of the plate, very pointed and not touching the sides of the ovipositor, and the median carina is distinct. This type of plate approaches that of the species of *Roeseliana*.

On the other hand, an elongation of the plate of *M. brachyptera* would produce the almost semi-tubular type of *Bicolorana bicolor*. Other species of *Bicolorana* have developed longer lobes and, again, remind one of *Roeseliana*. In *Roeseliana*, the lobes of the subgenital plate do not touch the sides of the ovipositor, and the entire plate stands off in a very characteristic manner. The lobes are broad and strongly built. Thus, transitions are present in the

Metrioptera-group, showing that all these genera form a higher natural unit.

Pronotum. Several genera with much-abbreviated elytra have rounded pronota. It is at present impossible to indicate their exact affinities, since convergence has produced a considerable degree of resemblance. On the whole there appears to be a tendency for the pronotal carinae to disappear where the wings have become functionless. Much rounded pronota are often combined with very short elytra, though this does not apply without exception. In some genera, the shape of the pronotum is typical for all species, as for instance in *Montana*, *Platycleis*, *Tessellana*, in which the disc is depressed and anteriorly converging carinae are indicated, or in *Sporadiana* in which the pronotum is smoothly rounded, with a narrow back and obliquely sloping lateral lobes. In other genera, however, the shape of the pronotum is less constant, as for instance in *Parnassiana*, in which rounded and depressed pronota occur side by side, and to a minor degree in *Decorana*. In view of this fact, and on the evidence of the structure of the subgenital plate and the general coloration, most of the extremely brachypterous genera have been attached to the *Platycleis*-group.

Arrangement of genera. Summarising the evidence, one arrives at the following arrangement of the genera which, to some extent, reflects their phylogenetic relationships :—

(*Eodecticus*)
(*Decticus*)
(*Medecticus*)
1. *Montana* (related to *Decticus*)
2. *Semenoviana* (related to *Montana*)
3. *Parnassiana* (related to *Pholidoptera*)
(*Pholidoptera* and allies)
4. *Platycleis* } *Platycleis*-group } Platycleidini
5. *Squamiana* }
6. *Alticolana* }
7. *Sepiana*
8. *Tessellana* }
9. *Incertana* }
10. *Decorana*
11. *Sporadiana*
12. *Eumetrioptera*
13. *Metrioptera* } *Metrioptera*-group
14. *Sphagniana* }
15. *Bicolorana* }
16. *Roeseliana* }

An Artificial Key to the Genera.

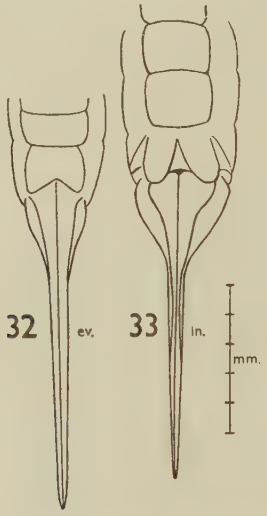
This key is based on the 74 species represented in the British Museum. Characters common to both sexes are used in conjunction with those of the female genitalia.

1. Ovipositor regularly curved, maintaining its width for some distance, tapering only towards the apex, mostly much longer than pronotum (figs. 1–21) . . . . . 2.

1a. Ovipositor suddenly recurved near base, then tapering rapidly, rarely longer than, often shorter than, pronotum (figs. 22–31) . . . . . 12.

2. Ovipositor light-coloured, often with apex and edges dark, much longer than pronotum, and fairly straight . . . . . 3.
2a. Ovipositor compressed and high, dark-coloured with yellow base, or brown throughout . . . . . 5.
3. Hind femora at least three times as long as pronotum. Slender species . 4.
3a. Hind femora hardly more than twice as long as pronotum. Stout species. Elytra much abbreviated. Dark brown *Parnassiana* gen. n. (p. 18).
4. Small to medium-sized species. Disc of pronotum depressed, with distinct edges converging anteriorly. In habitus reminiscent of *Platycleis* Fieb. Ovipositor with dark apex and edges. Many macropterous species . . . . . *Montana* gen. n. (p. 15).
4a. Medium-sized species. Disc of pronotum rounded, not depressed, lateral keels absent. Hind legs very long. Edge of pronotal lobes with an unusually narrow yellow band . . . . *Sepiana* gen. n. *partim* (p. 35).
5. Fully-winged species. Grey, yellowish-grey, or greyish-brown with spotted elytra. Green coloration abnormal. Female subgenital plate with longitudinal furrow . . . . . *Platycleis* Fieb. *partim* (p. 22).
5a. Elytra and wings abbreviated . . . . . 6.
6. Hind femora hardly more than twice as long as pronotum. Stout species. Pronotum rounded, lateral keels absent . . *Eumetrioptera* Mir. (p. 39).
6a. Hind femora at least $2\frac{1}{2}$, mostly three to four times as long as pronotum. Species of average build or slender. Pronotum variable . . . . 7.
7. Brown or greyish-brown species of the *Platycleis*-pattern. Female 7th sternite modified or not . . . . . 8.
7a. Dark brown or partly green species. Female 7th sternite not modified . 11.
8. Female 6th (and 7th) sternite modified . . . . . 9.
8a. Female 6th sternite not modified, 7th larger than 6th, or of normal size . 10.
9. Hind femora four times as long as pronotum. Ovipositor widest in distal third. Pronotum long, without lateral keels, with a marked, unusually thin edge of the lobe . . . . . *Sepiana* gen. n. *partim* (p. 35).
9a. Hind femora $2\frac{1}{2}$ times as long as pronotum. Pronotum broad, rounded anteriorly, flattened in metazona. Yellow edge broad or indistinct *Squamiana* gen. n. (p. 34).
10. Back of pronotum depressed, at least in metazona. Female 7th sternite unmodified or very slightly enlarged, never with pointed and flattened tubercles on the hind margin . . . . *Platycleis* Fieb. *partim* (p. 22).
10a. Back of pronotum not depressed. Female 7th sternite much wider and longer than 6th, with two pointed and flattened tubercles on the hind margin . . . . . *Alticolana* gen. n. (p. 34).
11. Metazona of pronotum normal, only slightly wider than fore portion *Metrioptera* Wesm. (p. 40).
11a. Metazona of pronqtum enlarged, twice as broad as fore portion *Sphagniana* gen. n. (p. 43).
12. Hind femora $2\frac{1}{2}$ times as long as pronotum, bottle-shaped, thin distal portion very short. Pronotum much rounded, lateral keels absent, pattern on back very narrow. Elytra shorter than pronotum. Small species . . . . . *Sporadiana* gen. n. (p. 39).
12a. Hind femora of normal shape and size, or long and slender . . . . . 13.
13. Female 7th sternite with longitudinal carina. Back of pronotum flat or triangularly depressed. Macropterous or brachypterous, elytra with a very marked line of black spots between R and M *Tessellana* gen. n. (p. 36).
13a. Female 7th sternite without longitudinal carina, though sometimes gibbous or spined . . . . . 14.
14. Female 6th sternite twice as long as fifth or seventh *Semenoviana* gen. n. (p. 18).

14a. Female 6th sternite approximately of the same size as other sternites . 15.
15. Last tergite with a deep and narrow incision, its lobes extended into long spines which, in the male, are almost as long as the cerci. Female 7th sternite with indistinct cross-ridge. Small to medium-sized, in habitus reminiscent of *Tessellana* . . . . *Incertana* gen. n. (p. 37).
15a. Last tergite of female with very short spines only . . . . . 16.
16. Ovipositor $\frac{1}{2}$ to $\frac{3}{4}$ as long as hind femur. Medium-sized species, brown. Back of pronotum broad, lateral lobes more divergent than usual . . *Decorana* gen. n. (p. 38).
16a. Ovipositor $\frac{1}{3}$ or less as long as hind femur. Medium-sized to fairly large species. Coloration brown, green or yellow, shiny . . . . . 17.
17. Female subgenital plate much longer than wide, tightly fitting the base of the ovipositor (except in *B. domogledi* which approaches *Roeseliana*) *Bicolorana* gen. n. (p. 44).
17a. Female subgenital plate large, deeply bilobate, standing off, not touching the sides of the ovipositor . . . . . *Roeseliana* gen. n. (p. 48).



Figs. 32 and 33.—The two main types of ovipositor, viewed from below. Fig. 32, *Montana eversmanni* (Kitt.); fig. 33, *Platycleis intermedia* (Serv.). same specimens and same enlargement as figs. 3 and 19 respectively. Considering the much smaller size of *M. eversmanni*, its ovipositor is much thicker throughout, whilst that of *P. intermedia* is very thin beyond the basal swelling. The former is a piercing instrument, the latter a cutting instrument.

List of Genera and Species.

The following signs and abbreviations are used :—

* Specimens studied of the species in question.
H Holotype studied.
P Paratype or paratypes studied.
C Cotype or cotypes studied.
L Lectotype studied.

Where " Type locality ", but no " Distribution " is given, the species is so far known from the type locality only.

1. **Montana** gen. n.

Genotype. *Locusta montana* Koll.

Diagnosis. Small to medium-sized. Elytra (if fully developed) narrow, with a very long sector radii, not exceeding the hind knees. Pronotum depressed above, lateral keels indistinct but present, converging anteriorly. Coloration nearly always brown, grey or yellow, rarely green. Elytra spotted.

Female subgenital plate with little or no sculpture on surface, often with a median carina, but never with a furrow or groove. Lateral lobes rounded, pointed, or absent. Ovipositor more than half as long as hind femur, slightly curved, light-coloured (grey or yellow), often with dark brown tip and edges.

* 1. *Montana montana* (Koll.), fig. 2.

1830. *Locusta tessellata* Charp. : Philippi, *Orth. Berol.* : 23, pl. 1 fig. 4. (Misidentification.
1833. *Locusta montana* Kollar, *Beitr. Landeskde Österr.* **3** : 79.
1849. *Decticus trockii* Kittary, *Bull. Soc. Nat. Mosc.* **22** : 459, pl. 8 fig. 3. (Mount Bogdo.)
1849. *Decticus philippicus* Zeller, *Stettin. ent. Ztg* **10** : 116.
1853. *Decticus* (*Platycleis*) *montanus* Kollar : Fischer, *Orth. Eur.* : 271, pl. 13 fig. 4, 4a–c. (Synonymises *philippicus* Zell. with *montana* Koll.).
1939. *Metrioptera trockii* Negediv & Miram, *Bull. Inst. Res. biol. Perm* **11** (9–10) : 270. (Regard *trockii* as distinct from both *eversmanni* and *montana*.)

Type Locality. Mt. Anninger, Mödling, near Vienna.
Distribution. Germany, Italy, Austria, Balkan Peninsula, Russia, Siberia, Altai, Mongolia, Yakutia.

* 2. *Montana striata* (Kitt.).

1849. *Decticus striatus* Kittary, *Bull. Soc. Nat. Mosc.* **22** : 462, pl. 8 fig. 4.
1924. *Metrioptera moldavica* Uvarov, *Trans. ent. Soc. Lond.* **1923** : 530, pl. 28 figs. 24, 25. (Berlad valley, Moldavia.)
1932. *Metrioptera striata* Kittary : Umnov, *Konowia* **11** : 23. (Synonymises *moldavica* with *striata*.)

Type Locality. Stawka-Chana, Kirguize Steppe.
Distribution. South-east Russia, Moldavia.

* 3a. *Montana eversmanni eversmanni* (Kitt.), figs. 3, 32.

1849. *Decticus eversmanni* Kittary, *Bull. Soc. Nat. Mosc.* **22** : 459, pl. 8 figs. 1, 2.
1931. *Platycleis eversmanni* (Kitt.) : Ramme, *Mitt. zool. Mus. Berlin* **17** : 180. (Synonymises *dubia* Uv. and *falzfeini* Rme. with *eversmanni*.)

Type Locality. Désert des Kirguises.
Distribution. South-east Russia, west and central Siberia.

3b. *Montana eversmanni zaisanica* (B.B.).

1926. *Metrioptera eversmanni zaisanica* Bey-Bienko, *Trans. Sib. Akad. Agr. For. Omsk* **6** (8) : 6, fig. 1.

Type Locality. Lake Zaisan, Semipalatinsk, Siberia.

* 4. *Montana falzfeini* Rme.

1920. *Platycleis falzfeini* Ramme, *Arch. Naturges.* **86** : 131, figs. 14–17.
1931. *Platycleis eversmanni* Kitt. : Ramme, *Mitt. zool. Mus. Berlin* **17** : 180 (*partim*).

Type Locality. Askania Nowa, Gouv. Cherson, south Russia.
Remarks. Ramme is inclined to synonymise this and the following species (*dubia* Uv.) with *eversmanni* Kitt.

* 5. *Montana dubia* (Uv.).

1910. *Platycleis dubia* Uvarov, *Hor. Soc. ent. Ross.* **39** : 384, figs. 6, 7.
1925. *Metrioptera eversmanni* (Kitt.) : Tarbinsky, *Rev. russe Ent.* **19** : 178, figs. 3, 4. (Synonymises *dubia* with *eversmanni* Kitt.).

Type Locality. Kalmykov, Uralsk prov.
Distribution. Khirguise Steppes.
Remarks. Probably at least a subspecies of *eversmanni*, the ovipositor being much longer than in the latter.

* 6. *Montana elegans* (Uv.).

H 1934. *Metrioptera elegans* Uvarov, *Eos* **10** : 67, fig. 13.

Type Locality. Ankara, Turkey.

* 7. *Montana stricta* (Zell.).

1849. *Decticus strictus* Zeller, *Stettin. ent. Ztg* **10** : 116.
1853. *Platycleis assimilis* Fieber, *Lotos* **3** : 150.
1878. *Platycleis stricta* Zeller : Krauss, *Sitzb. k. Akad. Wiss. Wien* **78** (1) : 70. (Synonymises *assimilis* with *stricta*.)

Type Locality. Via Appia towards Albano, near Rome.
Distribution. Italy, Istria.

* 8. *Montana carpetana* (Bol.).

1887. *Platycleis carpetana* Bolivar, *An. Soc. Esp. Hist. nat.* **16** : 106, fig. 12.

Type Locality. Escorial.
Distribution. Spain.

* 9. *Montana decticiformis* (Stschelk.).

1919. *Platycleis decticiformis* Stschelkanovzeff, *Izw. Kawkaz. Mus.* **8** : 13, 26, fig. 2.

Type Locality. Kubaly-Bašir-Bek, Šemacha, Gouv. Baku.
Distribution. Gouvs. Baku, Elizavetpol, and northern Caucasus.

* 10. *Montana taurica* (Bol.).

1899. *Platycleis taurica* Bolivar, *Ann. Soc. ent. Belg.* **43** : 603.

Type Locality. Bimbogha Dagh.
Distribution. Asia Minor.

* 11. *Montana schereri* (Wern.).

1901. *Platycleis schereri* Werner, *Sitzb. Akad. Wiss. Wien* **110** (1) : 36, pl. 2 fig. 8.

Type Locality. Eski-Shehir.
Distribution. Eski-Shehir and Pergamon, Asia Minor.

* 12. *Montana daghestanica* (Uv.).

1917. *Platycleis daghestanica* Uvarov, *Izw. Kawkaz. Mus.* **11** : 14, figs. 11, 12.

Type Locality. Gočob, district of Gunib.
Distribution. Daghestan.

* 13. *Montana tomini* (Pyln.).

1916. *Platycleis tomini* Pylnov, *Rev. russe Ent.* **16** : 280, figs. 1, 2.

Type Locality. River Tshikoy, northern Mongolia.
Distribution. Northern Mongolia and Transbaikalia.

* 14. *Montana tianshanica* (Uv.).

P 1933. *Metrioptera tianshanica* Uvarov, *Ark. Zool.* **26** (A) : 4, pl. 1 figs. 3, 4.

Type Locality. Fu-shu-shi, Tien-Shan Mts.

* 15. *Montana medvedevi* (Mir.).

1927. *Metrioptera medvedevi* Miram, *C.R. Acad. Sci. URSS* **1927** : 166, figs. 1–3.

Type Locality. Askania Nowa, south-east Russia.
Distribution. South-east Russia, Krim, Orenburg.
Remarks. Tentatively placed here.

* 16. *Montana barretii* (Burr).

1912. *Platycleis barretii* Burr, *Ent. Rec.* **24** : 31, pl. 1 figs. 2–7.
1938. *Metrioptera barretoi* Burr : Chopard, *Rev. franç. Ent.* **4** : 226.

Type Locality. Gran Corral.
Distribution. Madeira.
Remarks. Tentatively placed here.

* 17. *Montana armeniaca* (Rme.).

H 1930. *Metrioptera armeniaca* Ramme, *Mitt. zool. Mus. Berlin* **16** : 396.

Type Locality. Not given.
Distribution. Lake Gokča, 1900–2000 m., and Alagös, 2000–2800 m., both in Armenia.
Remarks. Tentatively placed here.

* 18. *Montana macedonica* (Berl. & Chop.).

1922. *Metrioptera macedonica* Berland & Chopard, *Bull. Mus. Hist. nat. Paris* **28** : 234, fig. 8.
1926. *Metrioptera macedonica* Berland u. Chopard : Ramme, *Deuts. ent. Z.* **1926** : 287, figs. 10, 11, 12c, 13a.

Type Locality. Sakulevo.
Distribution. Macedonia.
Remarks. Tentatively placed here. The male appendages of a specimen which Ramme supposed to belong to this species are suggestive of *Tessellana* rather than *Montana*. The original description of the female, however, agrees to some extent with *Montana*.

19. *Montana montenegrina* (Rme.).

1933. *Metrioptera montenegrina* Ramme, *Mitt. zool. Mus. Berlin* **18** : 420, fig. 5b.

Type Locality. Durmitor, Montenegro.
Remarks. Tentatively placed here.

2. **Semenoviana** gen. n.

Genotype. *Decticus tamerlanus* Saussure.

Diagnosis. Size medium. Elytra reduced. Pronotal disc depressed, with indistinct lateral keels converging anteriorly, as in *Montana*. Yellowish-brown.

Female 6th sternite twice as long as 5th or 7th. 6th and 7th sternites often sculptured. Subgenital plate with furrow, except in *S. tricarinata* and *plotnikovi*, which have a small carina. Ovipositor recurved near base, then fairly straight and tapering rapidly, pale in the genotype.

* 1. *Semenoviana tamerlana* (Sauss.), fig. 22.

1874. *Decticus tamerlanus* Saussure, *Izv. Obšč. Ljub. Est. Antrop. Etnogr.* **11** : 46.
1912. *Platycleis semenovi* Uvarov, *Rev. russe Ent.* **12** : 213. (Tashkent.)
1930. *Metrioptera tamerlanus* Sauss. : Tarbinsky, *Zool. Anz.* **91** : 333. (Synonymises *semenovi* with *tamerlana*.)

Type Locality. Samarkand.
Distribution. Turkestan.

2. *Semenoviana similis* (Tarb.).

1930. *Metrioptera similis* Tarbinsky, *Zool. Anz.* **91** : 334.

Type Locality. Dzhulek (Syr-Darya).
Distribution. Syr-Darya prov. (Turkestan).

3. *Semenoviana tadzhika* (B.B.).

1933. *Metrioptera tadzhika* Bey-Bienko, *Bol. Soc. Esp. Hist. nat.* **33** : 319, figs. 1, 2.
1935. *Metrioptera tadzhika* B.B. : Miram, *Trav. filiale Acad. Sci. URSS Tadjikistan* **5** : 226 figs. 4, 5.

Type Locality. River Piang, south-east Tadzhikistan.
Distribution. South-east Bukhara.

4. *Semenoviana tricarinata* Tarb.

1930. *Metrioptera tricarinata* Tarbinsky, *Zool. Anz.* **91** : 332, fig. 4.

Type Locality. Togun-Bulak, Turkestan Mts.
Remarks. Tentatively placed here.

* 5. *Semenoviana plotnikovi* (Uv.).

1912. *Platycleis plotnikovi* Uvarov, *Rev. russe Ent.* **14** : 227.

Type Locality. Tashkent.
Distribution. Turkestan.
Remarks. I have seen the male only. Tentatively placed here.

3. **Parnassiana** gen. n.

Genotype. *Metrioptera parnassica* Ramme.

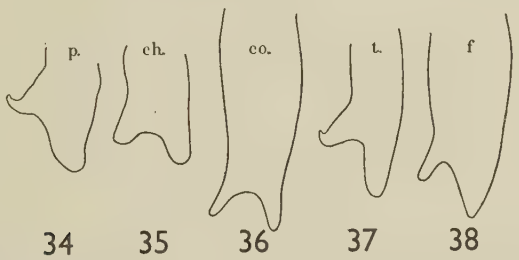
Diagnosis. Size small to medium. Elytra shorter than, or as long as, pronotum; rounded. Pronotum rounded above, or slightly depressed. Medium keel present on metazona. Hind femora only little more than twice as long as the pronotum, and much swollen in the basal half.

Coloration dark brown, lighter and more or less mottled on the back, as in many *Pholidoptera*, especially *Ph. cinerea*. The yellow edge of the pronotum, however, is much broader than in that species. In one specimen of *P. parnassica*, the back of the pronotum is olive green, as in the *Pholidoptera schmidti*-group. Sternites bright yellow.

Male subgenital plate large. Last tergite broadly depressed in middle, and deeply incised. The resulting lobes are large and long, of a peculiar shape (good specific character), and in the dried specimens nearly always crossed. Cerci with a very strong tooth which is bent downwards. Shape of cerci varies with the species from fairly slender to very short and thick.

Female sternites not modified. Subgenital plate smooth, with rounded lobes and a moderate, rounded or triangular excision. A shallow median groove, or the vestige of a carina, is sometimes observed, but they may be due to shrinkage. Ovipositor pale, yellowish-grey, fairly straight and about twice as long as pronotum, thick at the base, reminiscent of *Montana* and *Pholidoptera*.

Remarks. The species of this genus look almost like short-legged *Pholidoptera*, but the presence of short elytra in the females, the structure of the pronotum and the peculiarities of the male genitalia separate them from this genus. *Parnassiana* appears, in some respects, to be intermediate between *Montana* and *Pholidoptera*.

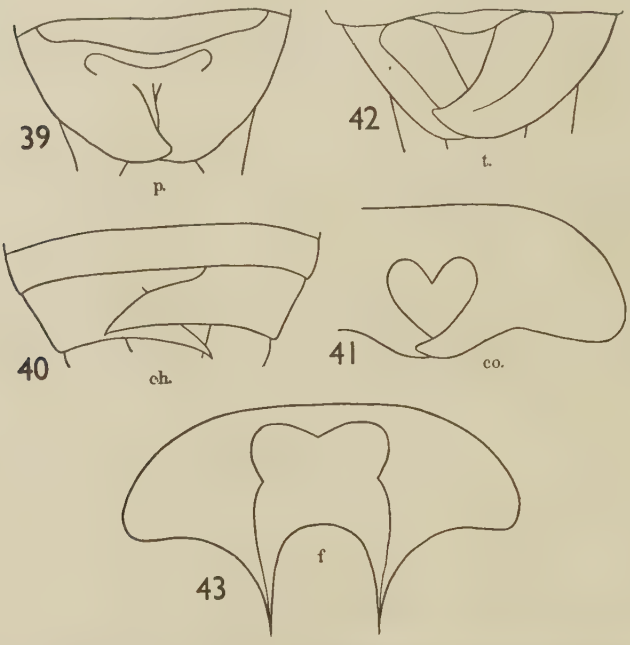


FIGS. 34–38.—Right cerci of males of the five known species of *Parnassiana* gen. n. (fig. 35 reversed drawing of a left cercus). The enlargement of figs. 34, 35 and 37 is the same, but figs. 36 and 38 were copied from Ramme's figures of the types, and their enlargement is not known. 34. *Parnassiana parnassica* (Rme.), from Mt. Parnassos. 35. *Parnassiana chelmos* sp. n., from Mt. Chelmos, holotype. 36. *Parnassiana coracis* (Rme.), after Ramme, 1926, fig. 8b. 37. *Parnassiana tymphrestos* sp. n., from Mt. Tymphrestos, holotype. 38. *Parnassiana fusca* (Br. W.), after Ramme, 1926, fig. 8a.

Key to the species of Parnassiana.

1. Back of pronotum rounded . . . . . 2.
1a. Back of pronotum depressed . . . . . 3.
2. Male cercus thick, with tooth inserted in the middle (fig. 34). Last tergite with two broad, semi-circular lobes (fig. 39). Female subgenital plate yellow or brown . . . . . *P. parnassica* (Rme.) (p. 20).
2a. Male cercus thick, with very broad apex and a subapical tooth (fig. 35). Last tergite with two slender lobes the points of which are directed backwards (fig. 40). Female subgenital plate shining black *P. chelmos* sp. n. (p. 21).
3. Male last tergite with two straight, pointed lobes directed backwards (fig. 43). Cercus moderately thick, with subapical tooth (fig. 38). Female subgenital plate with median carina . . . . *P. fusca* (Br. W.) (p. 21).
3a. Male last tergite with two incurved, usually overlapping lobes . . . . 4.
4. Male last tergite with lobes slender, pointed at the inner edge, the outer being strongly convex (fig. 41). Cercus moderately thick, with subapical tooth (fig. 36) . . . . . *P. coracis* (Rme.) (p. 21).

4a. Male last tergite with fairly broad lobes carrying a longitudinal carina (fig. 42). Cercus slender, with long and slender tooth removed from the apex by one-third of the length of the cercus (fig. 37)
P. tymphrestos sp. n. (p. 21).



Figs. 39–43.—Last tergites of males of *Parnassiana* gen. n., for remarks, see figs. 34–38. 39. *Parnassiana parnassica* (Rme.), from Mt. Parnassos. 40. *Parnassiana chelmos* sp. n., from Mt. Chelmos, holotype. 41. *Parnassiana coracis* (Rme.), after Ramme, 1926, fig. 8b. 42. *Parnassiana tymphrestos* sp. n., from Mt. Tymphrestos, holotype. 43. *Parnassiana fusca* (Br. W.), after Ramme, 1926, fig. 8a.

Measurements in mm.

Long.	*P. chelmos*		*P. parnassica*		*P. tymphrestos* ♂ Holotype
	♂ Holotype	♀ Paratype	♂	♀	
Corp. . .	18·0	18·0	17·5	18·1	15·8
Pron. . .	5·3	5·9	5·2	5·8	4·6
Elytr. . .	4·5	3·1	4·2	3·7	5·0
Fem. post. . .	12·4	13·0	12·8	13·0	12·5
Tib. post. . .	11·0	11·0	11·3	12·1	11·6
Ovipos. . .	—	11·5	—	11·2	—

* 1. *Parnassiana parnassica* (Rme.), figs. 34, 39.

1926. *Metrioptera parnassica* Ramme, *Deuts. ent. Z.* **1926** : 284, figs. 8c, 12a, 13d.

Type Locality. Mt. Parnassos, Greece.

Remarks. All the 13 specimens studied are slightly larger than those measured by Ramme.

* 2. **Parnassiana chelmos** sp. n., figs. 4, 35, 40.

Diagnosis. Pronotum rounded, not depressed. Male last tergite with two thin, crossed, lobes with tips pointing backwards. Cercus very short and broad, with broad apex and large, curved, subapical tooth. Female subgenital plate shining black, with slight longitudinal groove.

Types. Holotype (male) and paratypes (1 male, 3 females) in British Museum (Natural History). Paratypes (1 male, 1 female) in coll. Zeuner.

Type Locality. Mt. Chelmos, Greece, 2000 m.

Distribution. Apart from type locality, also on Mt. Kyllene, 2000 m.

Remarks. In size, shape, and general appearance like *P. parnassica*. The subgenital plate of all four females shows a longitudinal depression, absent in the six females of *P. parnassica* examined.

The male from Mt. Kyllene has a cercus with a tooth longer than the main tip (shorter in the Chelmos male). This may be a specific character. The Kyllene male, however, is not well preserved, and more material is required to settle this point. The differences in the male are certainly slight and the females are identical. Mt. Kyllene and Mt. Chelmos are in north Morea, and fewer than 15 miles apart. For these reasons I am inclined to unite the Kyllene specimens with the Chelmos specimens in one species, at least for the time being.

* 3. *Parnassiana coracis* (Rme.), figs. 36, 41.

1920. *Platycleis coracis* Ramme, *Arch. Naturges.* **86** : 125, figs. 3–8, pl. 3 figs. 3a, b.
1926. *Metrioptera coracis* Ramme: Ramme, *Deuts. ent. Z.* **1926** : 285, fig. 8b, 12a.

Type Locality. Korax promontory, Isle of Paros, Cyclades.

Remarks. In 1931, Ramme published figure and description of a specimen from the Veluchi Mts., Greece, which he believed to be *coracis*. It evidently is conspecific with *P. tymphrestos* sp. n. described below. Ramme's figures of a true *coracis* are reproduced here (figs. 36, 41).

* 4. **Parnassiana tymphrestos** sp. n., figs. 37, 42.

1931. *Metrioptera coracis* (Ramme): Ramme, *Mitt. zool. Mus. Berlin* **17** : 180, fig. 4. (Misidentification.)

Diagnosis. Pronotum depressed, as in *Montana*. Male last tergite with fairly broad, curved lobes, each carrying a longitudinal carina. Cercus slender, with long and slender tooth inserted two-thirds down the length of the cercus.

Types. Holotype and 5 paratypes (all males) in British Museum (Natural History). Paratype (male) in coll. Zeuner.

Type Locality. Mt. Tymphrestos = Veluchi, central Greece, 2000 m.

Remarks. This species is easily distinguished from *P. coracis* and *P. fusca* by the male cercus and the last tergite. Ramme's figure of a cercus of a specimen from the Veluchi Mts., 1800–2000 m., considered by him as *coracis*, agrees completely with *P. tymphrestos* sp. n.

5. *Parnassiana fusca* (Br. W.), figs. 38, 43.

1882. *Platycleis fusca* Brunner v. Wattenwyl, *Prodr. eur. Orth.* : 358.
1926. *Metrioptera fusca* Br.: Ramme, *Deuts. ent. Z.* **1926** : 284, fig. 8a.

Type Locality. Mt. Taygetes, south Morea, Greece.

Remarks. Tentatively attached to *Parnassiana*.

4. *Platycleis* Fieber.

1852. *Platycleis* Fieber, *in* Kelch, *Orth. Oberschles.* : 5 (diagnosis) and 2 (species included) (*partim*).
1874. *Platycleis* Fieb. : Herman, *Verh. zool.-bot. Ges. Wien* **24** : 207 (*partim*).
1906. *Chelidoptera* Wesm. : Kirby, *Syn. Cat. Orth.* **2** : 203 (*partim*) Preoccupied by Gould, 1836, *Proc. zool. Soc. Lond.* **4** : 81 (Aves).
1908. *Metrioptera* Wesmael : Caudell, *Gen. Ins.* **72** : 30 (*partim*).
1910. *Platycleis* Fieb. : Kirby, *Syn. Cat. Orth.* **3** : 571.
1924. *Metrioptera* Wesm. : Uvarov, *Trans. ent. Soc. Lond.* **1923** : 528 (*partim*).
1927. *Platycleis* Fieb. : Ramme, *Eos* **3** : 136, 138. (Restricted to the long-winged species of the *intermedia*-type.)
1929. *Platycleis* Fieb. : Zeuner, *Mitt. zool. Mus. Berlin* **15** : 204.
1930. *Metrioptera* Wesm. : Tarbinsky, *Zool. Anz.* **91** : 327 (*partim*).

Genotype. *Locusta grisea* Fabricius 1781. (Selected by Kirby, 1906 : 203, line 30.)

Diagnosis. Size medium to large. Mostly fully winged. Elytra with very long sector radii. Pronotum depressed above and lateral keels indicated, at least in the metazona, but mostly in the prozona also, where the keels converge.

Coloration grey or brown, elytra usually spotted. Green very exceptional.

Female subgenital plate with two often strongly sculptured lobes separated by a furrow. Distal ends of lobes never *acutely* pointed. Ovipositor compressed, regularly curved upwards, dark brown except at base, which is yellow.

Remarks. As mentioned in the introduction, the name *Platycleis* Fieb. has been applied to a very large number of species, comprising those covered by the above diagnosis as well as most of the genera newly described in this paper, including *Metrioptera* s. str., *Roeseliana*, *Bicolorana*, *Montana* and *Tessellana*.

Platycleis was established by Fieber in 1852 to receive the species *griseus* F., *bicolor* Phil., *brevipennis* Charp. (= *roeselii* Hagb.), *brachypterus* L. Fieber's words suggest that he regarded *grisea* as typical, though he did not expressly say so. Herman (1874) made *intermedia* Serv. the genotype, but this species was not originally included in the genus and this designation therefore cannot be accepted. Ramme and Uvarov followed Herman, but it is obvious that Kirby (1906 : 203, line 30) fixed *grisea* Fabr. as the genotype of *Platycleis*. This is the only fully-winged species originally included by Fieber.

Kirby, in 1906, discovered that Wesmael (1838, *Bull. Acad. Bruxelles* **5** : 592) had divided the genus *Decticus* into *Chelidoptera* (with *verrucivorus* and *grisea*), *Metrioptera* (with *brachyptera*) and *Pholidoptera* (with *aptera*). Of these, *Chelidoptera* is a synonym of *Decticus*, in accordance with article 9 of the International Code of Zoological Nomenclature : " If a genus is divided into subgenera, the name of the typical subgenus must be the same as the name of the genus." For unknown reasons, Kirby accepted *Chelidoptera* to cover all the species except those of the *Pholidoptera*-group (which constitutes a well-defined group and has never been contested). In 1910, however, he discovered that *Chelidoptera* is preoccupied, and thereafter used *Platycleis*.

Subdivisions. The genus *Platycleis* comprises at least two larger and two smaller groups of Recent species, to which may be added a fifth comprising the fossil species, as follows :—

I. Female subgenital plate with narrow median furrow, and with rounded or slightly pointed lobes. (*P. occidentalis, grisea, intermedia, ragusai, sabulosa.*)

II. Female subgenital plate with wide median furrow, and with rounded or slightly pointed lobes. (*P. falx, fatima, escalerai.*)

III. Female subgenital plate with fairly narrow median furrow, and with very large, squarely truncate lobes. (*P. romana, iberica.*)

IV. Brachypterous forms with female subgenital plate with narrow median furrow and shortened, truncate lobes. (*P. iljinskii, alexandra* ; this group is perhaps artificial.)

V. Fossil species belonging probably to group I, II, or III. (*P. pongráczi, speciosa.*)

All characters used in the classification of the species, such as shape of elytra, pronotum, ovipositor, and sculpture of the 6th and 7th sternites of the female, vary considerably. It is therefore often difficult to separate the species clearly, at least so long as the internal genitalia of the males have not been studied in detail, and there are hardly any two species of which I have not seen apparently intermediate specimens. It is probable that each of the groups I, II and III forms some kind of " super-species " in which the truly specific characters have not yet become entirely consolidated. In group I, for instance, *occidentalis* lives in west Germany, France, Britain, Spain, and Morocco. In east Germany, Poland, Russia, Balkan peninsula, Italy and Corsica, it is replaced by *grisea*, and transitional specimens have been found in the contact area. *P. grisea* in turn shows transitions to *P. intermedia* in the mountains of south Europe, especially of the Balkan peninsula. *P. intermedia*, again, reigns in the warm zones of the Mediterranean, but from Greece and Cyprus south-eastwards, the 6th sternite tends to develop ridges, and the elytra become very long (subsp. *mesopotamica*). This form was originally described as a species. In the mountains of Asia (Turan, Afghanistan), however, a short-winged form of *intermedia* occurs (subsp. *turanica*). In addition, another type of group I is found in the extreme west and along the north African coast as far as Palestine, in which the 7th sternite is almost flat, but provided with two small lateral tubercles. The elytra are, as a rule, extremely long (*P. sabulosa*). Even this type is connected with the *P. grisea* by rare transitions.

One might be inclined to regard the species as geographical races, but this is not feasible, since they overlap in wide areas.

The revision of the species as given below is merely preliminary. Several authors have previously tried to bring order into this genus (Uvarov, 1924; Ramme, 1927; Zeuner, 1929; Tarbinsky, 1930).

Group I.

Fully-winged species, female subgenital plate with narrow median furrow and rounded or slightly pointed lobes.

* 1a. *Platycleis occidentalis occidentalis* Znr., fig. 11.

1922. *Metrioptera albopunctata* (Goeze) : Chopard, *Faune de France* **3** : 82, 61, figs. 209, 210.
HP 1931. *Platycleis grisea occidentalis* Zeuner, *Mitt. zool. Mus. Berlin* **17** : 426, fig. 1b.
1940. *Platycleis occidentalis* Znr. : Zeuner, *Proc. R. ent. Soc. Lond.* (B) **9** : 105, 106, pl. 1 fig. 3.

Type Locality. Tübingen, south-west Germany.
Distribution. Central, west and south Germany, Britain, France, Pyrenees.

* 1b. *Platycleis occidentalis jerseyana* Znr., fig. 12.

HP 1940. *Platycleis occidentalis jerseyana* Zeuner, *Proc. R. ent. Soc. Lond.* (B) **9** : 105, 106, pl. 1 figs. 1, 2.

Type Locality. Quennevais, Jersey, Channel Islands.
Distribution. Jersey and Guernsey, Channel Islands.

* 1c. *Platycleis occidentalis* f. *collina* (Nav.).

H 1924. *Platycleis grisea* f. *collina* Navas, *Trab. Mus. Cien. nat. Barcelona* **4** (10) : 19.

Type Locality. Pla d'Aiats, Cabrerés (Girona-Barcelona).

Distribution. Possibly more widely distributed in north-eastern Spain : Sallent near Barcelona (male in British Museum (Natural History)), Sierra del Toro (Castellon prov.) (coll. E. Morales Agacino).

Remarks. An unimportant variety of *P. occidentalis occidentalis*, as far as can be made out. Based on a male with elytra of the *turanica*-type, which do not reach the hind knees. Another male from the Barcelona district, in the British Museum, is less extreme but possibly belongs here. A female from the Castellon province also has elytra not reaching the hind knees (coll. Morales Agacino). Its ovipositor is short and strongly bent, and the subgenital plate comparatively small. These characters bring it near to *P. occidentalis occidentalis* and distinguish it from *P. occidentalis hispanica* described below. It is possible, therefore, that a short-winged form of *P. o. occidentalis* (to which the name *collina* may be applied) inhabits north-eastern Spain, whilst the typical Spanish form, *P. o. hispanica*, extends north-westwards into France.

Through the courtesy of Sen. E. Morales Agacino, Barcelona, I have been able to examine the holotype of *P. o. collina*.

* 1d. **Platycleis occidentalis hispanica** subsp. n.

1929. *Platycleis carpetana* J. Bol. : Ramme, *in* Zeuner, *Mitt. zool. Mus. Berlin* **15** : 216. (Based on misidentified specimens received by Ramme, who recognised their affinity to "*grisea* F.")
1929. *Platycleis carpetana* Bol. : Zeuner, *Mitt. zool. Mus. Berlin* **15** : 214, pl. 16 fig. 6.

Diagnosis. In size and coloration like typical *P. occidentalis* from France, but subgenital plate of female larger and ovipositor longer and straighter. Compare measurements, below.

Type Locality. Sierra de Guadarrama, central Spain.

Types. Holotype (female) and paratypes (3 females, 5 males) from Sierra de Guadarrama in British Museum (Natural History). Paratypes (one male, one female) from type locality in coll. Zeuner.

Further paratypes : One female from Sierra de Gredos in British Museum (Natural History), and 16 specimens in coll. E. Morales Agacino, Barcelona, from Brunete and El Escorial (Madrid prov.), Invernadero, 1000 m. (Orense prov.), Marin, Mt. Domayo, and Isla de Tambo (Pontevedra prov.), S. Juan (Huesca prov.), and Arcachon (south-west France). Three specimens from Morocco in British Museum (Natural History), one from Middle Atlas Mts., Timhadit, 5000 ft., two others from Aguelman Sidi Ali ou Mohammed, Middle Atlas Mts., 6500 ft. (These specimens were recorded by Chapman, the collector, as *P. grisea grisea* in 1938, *Proc. R. ent. Soc. Lond.* (B) **7** : 94.)

Type Locality. Sierra de Guadarrama, central Spain, 1200–1500 m.

Distribution. South-west France, Spain (provinces Pontevedra, Huesca, Orense, Madrid), and Atlas Mountains of Morocco.

Remarks. *P. occidentalis hispanica* is well characterised by its large and broad subgenital plate which, apart from size, resembles that of typical *occidentalis*. The lobes of some specimens, especially those from the Atlas Mountains, are more rounded than in typical *P. occidentalis*. The ovipositor is fairly straight and comparatively slender, and much longer than in the typical

subspecies, being more than half as long as the hind femur. In this respect it resembles *P. occidentalis jerseyana* which, however, is much smaller and has the normal, small subgenital plate.

Measurements in mm.

Subspecies of *P. occidentalis*, holotypes (all females).

Long.	*occidentalis*	*jerseyana*	*hispanica*	*maura*
Pron. . .	5·8	4·6	5·3	6·8
Elytr. . .	21·6	17·6	23·8	33·6
Fem. post. .	21·5	17·3	19·4	25·2
Ovipos. . .	9·4	9·2	11·2	11·7

It is not certain whether this subspecies extends to eastern Spain (see *P. o. collina* Nav.).

* 1e. **Platycleis occidentalis sculpta** subsp. n.

Diagnosis. Like *P. occidentalis hispanica*, but seventh sternite of female provided with a cross-ridge and a slightly raised hind margin, as in *P. intermedia*.

Types. Holotype, female from Cercedilla, in the collection of Sen. E. Morales Agacino, Barcelona. Paratypes (one male, one female) from Rio Sorbe, Humanes, in same collection. Paratypes (one female from Cercedilla, one male, one female from Humanes) in British Museum (Natural History).

Type Locality. Cercedilla, central Spain, near the alpine biological station.

Distribution. Apart from type locality, at Rio Sorbe, Humanes, Guadalajara prov., Spain.

Remarks. This form corresponds to *P. grisea transiens* subsp. n. Whilst the latter quite plainly prefers mountain habitats, this has still to be established for *P. occidentalis sculpta*. Cercedilla is a mountain locality in the neighbourhood of which, however, the ordinary *P. o. hispanica* is found, too. Humanes, on the other hand, appears to be rather low. The subspecific rank of *P. o. sculpta*, therefore, is open to doubt, but as a form it certainly deserves a name.

* 1f. **Platycleis occidentalis maura** subsp. n.

Diagnosis. Much larger than typical *occidentalis*, elytra exceeding hind knees, in habitus resembling *P. sabulosa*. Subgenital plate of female very large and broad, with distinctly rounded lobes. Ovipositor comparatively short, shorter than half the hind femur. Compare measurements, under *P. o. hispanica*.

Types. Holotype (female) from Ifrane, paratypes (1 female) from Ifrane, (10 females, 9 males) from El-Gehra in British Museum (Natural History). Paratypes (1 male, one female) from El-Gehra in coll. Zeuner.

Type Locality. Ifrane, Morocco.

Distribution. Apart from type locality, El-Gehra Station, south of Constantine, Algeria.

Remarks. This subspecies can easily be mistaken for *P. sabulosa*, from which it is distinguished by the large subgenital plate (in *P. sabulosa* unusually small for the genus), and by the absence of the small lateral tubercles of the 7th sternite of *P. sabulosa*. The short ovipositor and the large size of the specimens distinguish it from *P. o. hispanica*, which also occurs in Morocco.

* 2a. *Platycleis grisea grisea* (Fabr.), fig. 17.

1749. (no name): Roesel, *Ins.-Belust.* **2** (Heuschrecken): pl. 29 fig. 10.
1781. *Locusta grisea* Fabricius, *Spec. Ins.* **1**: 359.
1796. *Locusta denticulata* Miln.: Panzer, *Deutschl. Ins.* **33**: 5, pl. 5. (This name is usually attributed to Panzer, since no description by "Miln." can be traced. The figure clearly is intended to show *Platycleis grisea*.)
1804. *Locusta grisea* Fabr.: Panzer, *in* Herrich-Schaeffer, *Icon. Ins.*: 79, pl. 62 figs. 1–4; 166, pl. 190 figs. 1, 2; 207, pl. 258 figs. 1, 2.
1815. *Locusta striata* Thunberg, *Mém. Acad. Sci. St. Pét.* **5**: 283.
1821. *Locusta falcata* Zetterstedt, *Orth. Suec.*: 68.
1822. *Locusta grisea* Fab.: Latreille, *Hist. nat. Crust. Ins.* **12**: 131, pl. 95 fig. 2. (Refers to Herrich-Schaeffer.)
1853. *Decticus* (*Platycleis*) *griseus* Fab.: Fischer, *Orth. Europ.*: 269. (Synonymises *falcata* Zett. with *grisea* Fab.)
1882. *Platycleis grisea* Fab.: Brunner v. Wattenwyl, *Prodr. eur. Orth.*: 347. (Synonymises *denticulata* and *falcata* with *grisea*.)
1906. *Chelidoptera albopunctata* Goeze: Kirby, *Syn. Cat. Orth.* **2**: 203. (Synonymises *striata* Thbg. with *albopunctata*.)
1908. *Platycleis grisea* F.: Luther, *Medd. Soc. Faun. Flor. Fenn.* **34**: 123. (Probably not referring to this species, but to *Metrioptera brachyptera*.)
1927. *Platycleis grisea* Fabr.: Ramme, *Eos* **3**: 138, fig. 15a, pl. 6 fig. 1.
1929. *Platycleis grisea* Fabr.: Zeuner, *Mitt. zool. Mus. Berlin* **15**: 209, figs. 2 and 4.
1929. *Platycleis grisea* f. *macroptera* Luther: Ramme, *in* Zeuner, *Mitt. zool. Mus. Berlin* **15**: 216. (Luther himself did not use this name; it is found in the index to the volume only, see Luther, 1908.)
1929. *Metrioptera albopunctata* Goeze: Miram, *Annu. Mus. zool. Acad. Sci. USSR* **30**: 465, 467, pl. 35 fig. 18, pl. 36 fig. 20.
1931. *Platycleis grisea grisea* F.: Zeuner, *Mitt. zool. Mus. Berlin* **17**: 425, fig. 1a.

Type Locality. "Italy."

Distribution. East Germany, Scandinavia, Poland, Russia, Balkan peninsula, ?Palestine, Caucasus, Altai, Italy (I have caught the typical subspecies at Vetta, on the peninsula of Portofino, Liguria, 400 m.; also in the valleys of the southern Alps, and at Genoa. Compare, however, *P. grisea transiens* subsp. n., below).

Remarks. In 1781, Fabricius described a long-winged Decticine as follows: "L. thorace postice carinato rotundato fusca, ense falcata atro basi utrinque pallido. Habitat in Italia. D. Allioni. Caput et thorax fusca, obscura antennis longitudine corporis flauescentibus. Elytra fusco cinereoque variegata. Alae hyalinae. Pedes virescentes." It is quite clear that a species of *Platycleis* is meant by this description, since other TETTIGONIIDAE to which it might apply were known to Fabricius and distinguished by him. The question of what is *Locusta grisea* has, in fact, never been raised, and all authors agree that it is the species of *Platycleis* which occurs in Italy as well as in central Europe. For over 100 years, nobody doubted the application of this name until, in 1906, Kirby dug out Goeze's *Tettigonia albo-punctata*.

In 1778, Goeze (*Ent. Beytr.* **2**: 89, no. 1) described what he called *Gryllus Tettigonia albo-punctatus* as follows: "Feminae corpus viridescens; mas fusco-testaceus; elytris flavo-marginatis et maculatis; in femorum junctura punctum albissimum." He referred to Roesel, *Ins.-Belust.* **2**: pl. 20 figs. 8, 9, 10. These figures represent, in this order, *Pholidoptera cinerea*, *Roeseliana roeselii* or *Bicolorana bicolor*, and *Platycleis grisea*. Goeze's description of the female refers to fig. 9, and so does the name which alludes to the pale knees of the specimen figured (this appears to be merely a reflection of light inserted by the artist; it helps to show which of the three figures Goeze considered as typical). This fig. 9 represents *Roeseliana roeselii*, or *Bicolorana bicolor*.

The male was described by Goeze after Roesel's fig. 8, a *Pholidoptera cinerea*, identifiable by the yellow margin of the elytron.

It is evident, therefore, that the name "*albo-punctata*" does not refer to the one species to which it was assigned by Kirby, *i.e. Platycleis grisea* (Roesel, *loc. cit.* fig. 10).

Goeze's description and name are primarily based on Roesel's fig. 9. One cannot decide whether this figure represents *Roeseliana roeselii*, or *Bicolorana bicolor*. If one arbitrarily attached the name "*albopunctatus*" to one of these two, a well-established name would be replaced by another well-known name and, all three species being frequent and widely distributed, incredible confusion would be the result. It is therefore necessary to have the indeterminate name "*albopunctatus*" invalidated, and a request to that effect has been forwarded to the International Commission on Zoological Nomenclature.

Locusta falcata Gmelin 1789, quoted by Caudell (1908) as a synonym of *P. grisea*, clearly refers to *Phaneroptera falcata* (Scop.).

* 2b. *Platycleis grisea monticola* (Chop.).

1923. *Metrioptera albopunctata monticola* Chopard, *Ann. Soc. ent. France* **92** : 265, fig. 6.

Type Locality. Foce de Vizzavona, Corsica, 1400–1600 m.

Remarks. This small-sized mountain form of *P. grisea* was compared by Chopard with specimens of *P. occidentalis* from France, and the differences therefore appeared great to him. Specimens from the type locality, which I have been able to study, are distinctly smaller than Italian *P. grisea grisea*. A specimen from Vizzavona, 1200 m. (200–400 m. below the type locality), however, belongs to the race *transiens* described below. It is therefore doubtful whether *P. g. monticola* should be retained at all or considered as a synonym of *P. g. grisea*. The comparatively small size, perhaps, provides a chance to retain *monticola* as a local subspecies.

* 2c. **Platycleis grisea transiens** subsp. n., fig. 18.

Diagnosis. In size of body and shape of elytra resembling *P. grisea grisea*, but last sternite of female slightly gibbous and with its posterior margin turned up. This sternite resembles that of *P. intermedia*, but the sculpture is less pronounced.

Types. Holotype (female) and paratypes (7 females, 4 males) from mountains of Greece, paratypes (2 females) from Piedmont, one female paratype from Gevgeli (south Serbia) in British Museum (Natural History). Further paratypes from the Ligurian Apennine, Vizzavona (Corsica) and southern Alps in coll. Zeuner.

Type Locality. Mt. Chelmos, Greece, 1500 m.

Distribution. Mountains of southern Europe: Mt. Chelmos, Mt. Tymphrestos, Mt. Parnassos, Mt. Hortiat in Greece, all between 1400 and 1800 m., except Hortiat (600 m.); Gevgeli in south Serbia, over 1000 m.; Forcella near Chiavari, Ligurian Apennine, 950 m.; Vizzavona, Corsica, 1200 m.; Bardonecchia, Piedmont; Locarno, Ticino, 1000 m.; Eisack valley, Trentino, 800 m.; the last three localities in the southern Alps.

Remarks. This interesting form suggests a subspecific connection between *P. grisea* and *P. intermedia*. In the southern Alps and in Corsica, *P. grisea transiens* occurs together with typical *P. grisea grisea*. On the Forcella, Ligurian Apennine, I caught *P. g. transiens* only. The high mountains of Greece also appear to be populated by this race only. *P. intermedia* was found associated with it on Mt. Tymphrestos, and at Gevgeli.

* 2d. *Platycleis grisea* f. *mirabilis* Rme.

1923. *Platycleis grisea* f. *mirabilis* Ramme, *Arch. Naturgesch.* **89** : 167.
1927. *Platycleis grisea* f. *mirabilis* Ramme : Ramme, *Eos* **3** : 139.

Type Locality. Eisack valley, southern Alps.
Remarks. Colour variety.

* 3a. *Platycleis intermedia intermedia* (Serv.), fig. 19.

1839. *Decticus intermedius* Serville, *Ins. Orth.* : 488.
1846. *Decticus krinickii* Fischer-Waldheim, *Nouv. Mém. Soc. Imp. Nat. St. Pétersb.* **8** : 164, pl. 10 fig. 3. (Kharkov.)
1853. *Decticus* (*Platycleis*) *griseus* Fab. variet. major : Fischer, *Orth. Eur.* : 270.
1922. *Metrioptera intermedia* (Serv.) : Chopard, *Faune de France* **3** : 83, 61, figs. 211, 214.
1924. *Metrioptera intermedia* (Serv.) : Uvarov, *Trans. ent. Soc. Lond.* **1923** : 536.
1927. *Platycleis intermedia* Serv. : Ramme, *Eos* **3** : 140, fig. 15d; pl. 5 fig. 3; pl. 6 fig. 4.
1929. *Metrioptera intermedia* Serv. : Miram, *Annu. Mus. zool. Acad. Sci. URSS* **1929** : 465, 468, pl. 36 fig. 21a, b, c.
1929. *Platycleis intermedia* Serv. : Zeuner, *Mitt. zool. Mus. Berlin* **15** : 209, fig. 4.

Type Locality. Montpélier, France.
Distribution. Morocco, Spain, south France, Corsica, Italy, Dalmatia, Greece, Serbia, Asia Minor, Palestine, Cyprus, Iran, Baluchistan, south Russia, Turkestan, Altai, China. (I have seen no specimens from Altai or China.)

* 3b. *Platycleis intermedia turanica* Znr.

HP 1929. *Platycleis intermedia turanica* Zeuner, *Mitt. zool. Mus. Berlin* **15** : 209, figs. 1 and 4.

Type Locality. Buchara.
Distribution. Turkestan.

* 3c. *Platycleis intermedia mesopotamica* Rme., fig. 20.

H 1927. *Platycleis mesopotamica* Ramme, *Eos* **3** : 141, fig. 15e; pl. 6 fig. 5.
1929. *Platycleis mesopotamica* Ramme : Zeuner, *Mitt. zool. Mus. Berlin* **15** : 213, fig. 7.

Type Locality. Tel Halaf, central Mesopotamia.
Distribution. Greece, Transcaucasia, Turkestan, Cyprus, Mesopotamia, Iran, Baluchistan.
Remarks. This form, in which the 6th sternite of the female repeats more or less the structure of the 7th, is connected with typical *P. intermedia* by many transitions. It is most frequent in the Near East, where it appears to dominate in certain districts over the typical form. It is certainly not more than a subspecies.

* 3d. *Platycleis intermedia sylvestris* Az.

1901. *Platycleis intermedia* var. *sylvestris* Azam, *Misc. ent.* **9** : 158.
1922. *Metrioptera intermedia* var. *sylvestris* Azam : Chopard, *Faune de France* **3** : 83, fig. 213.
1927. *Platycleis intermedia* subsp. *sylvestris* Azam : Ramme, *Eos* **3** : 141.

Type Locality. Bagnols, Var, south France.
Remarks. According to Ramme, who saw the holotype, not essentially different. It is characterised by a prominent sculpture of the 7th sternite and a gibbosity on the 6th. It thus approaches *P. i. mesopotamica*. Owing to the courtesy of Dr. Chopard, I have been able to examine a male and a female from the type locality.

3e. *Platycleis intermedia umbilicata* (Costa).

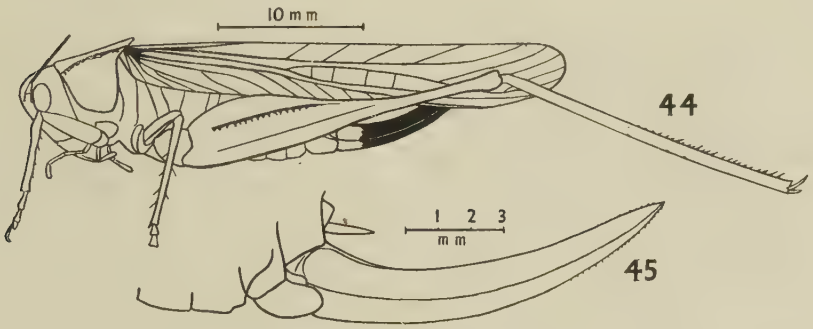
1885. *Platycleis umbilicata* Costa, *Bull. Soc. ent. Ital.* **17** : 242.
1911. *Platycleis biedermanni* Wolf, *Zool. Anz.* **37** : 121, figs. 1–3. (Asuni, Sardinia.—Possibly identical with *umbilicata*.)

Type Locality. Sardinia.
Remarks. Perhaps identical with typical form.

* 4. *Platycleis ragusai* Rme.

HP 1927. *Platycleis ragusai* Ramme, *Eos* **3** : 140, fig. 15c; pl. 5 fig. 2, pl. 6 fig. 3.
1929. *Platycleis ragusai* Ramme : Zeuner, *Mitt. zool. Mus. Berlin* **15** : 214, fig. 7.

Type Locality. Colle S. Rizzo near Messina, Sicily.
Distribution. Sicily.
Remarks. Possibly a subspecies of *P. intermedia*.



Figs. 44–45.—*Platycleis pathana* sp. n. 44. Lateral view. 45. Ovipositor.

* 5a. *Platycleis sabulosa sabulosa* Az.

1901. *Platycleis sabulosa* Azam, *Misc. ent.* **9** : 157.
1922. *Metrioptera sabulosa* (Azam) : Chopard, *Faune de France* **3** : 83, 61, figs. 215, 216.
1927. *Platycleis sabulosa* Azam : Ramme, *Eos* **3** : 139, fig. 15b, pl. 6 fig. 2.
1929. *Platycleis sabulosa* Azam : Zeuner, *Mitt. zool. Mus. Berlin* **15** : 211, fig. 5.

Type Locality. Fréjus, French Riviera.
Distribution. Canaries, Spain, south France, Algeria, Palestine.
Remarks. I have examined a pair from the type locality. In these, the ridge connecting the two tubercles of the 7th sternite is fairly prominent. It is often weak in other specimens.

5b. *Platycleis sabulosa indecisa* (Bol.).

1914. *Metrioptera sabulosa indecisa* Bolivar, *Mem. R. Soc. Esp. Hist. nat.* **8** : 232.

Type Locality. Tanger.
Distribution. Morocco, and elsewhere in the area of the species.
Remarks. Apparently almost identical with typical form. The 7th sternite of the female is said to be nearly flat. Such specimens are very frequent, not only in Morocco, and connected with *P. sabulosa sabulosa* by numerous transitions. They hardly deserve a name.

* 6. **Platycleis pathana** sp. n., figs. 44, 45.

Diagnosis. More slender than any other species of *Platycleis*. Pronotum small. Elytra considerably exceeding the hind knees, of the *sabulosa*-type.

Seventh sternite of female with a cross-ridge not far from the hind margin. This ridge is more distinct laterally than in the middle. Hind margin of 7th sternite raised in the middle third. Subgenital plate reminiscent of *P. grisea grisea*, fairly small, its lobes semicircularly rounded. Ovipositor slender, twice as long as pronotum, reminiscent of *P. affinis*.

Holotype. British Museum (Natural History), reg. no. 1939–202 (Fletcher coll.).

Type Locality. Tarnab, Peshawar district, North-western Frontier Province, India, 26.v.1916.

Measurements.

	P. pathana	*P. intermedia* (specimen figured)
Head–tip of elytra (a)	38·0 mm.	38·0 mm.
Maximum width of pronotum (b)	3·6 mm.	4·4 mm.
Total length (a) : width of pronotum (b)	10·3 mm.	8·6 mm.
Length of pronotum	5·8 mm.	7·1 mm.
Length of elytra (L)	31·0 mm.	31·0 mm.
Length of sector radii (l)	20·4 mm.	20·7 mm.
l : L	0·66 mm.	0·67 mm.
Average width of elytron (b)	4·2 mm.	4·6 mm.
l : b	4·85 mm.	4·5 mm.
Length of hind femur	22·8 mm.	25·1 mm.
Length of ovipositor	11·5 mm.	10·6 mm.

Remarks. This remarkable species may be recognised at a glance by its unusual slenderness. The table of measurements, in which the holotype is compared with a specimen of *P. intermedia* having the same total length, bear this out sufficiently.

In comparison with *P. intermedia* or, indeed, any other species of the genus, the head and pronotum of *P. pathana* are decidedly small. The angle between frons and vertex is more acute than in any other species of the genus, and the fore margin of the lateral lobe of the pronotum runs obliquely downwards and backwards, converging with the hind margin more strongly than in other *Platycleis*. The elytra are very slender and of the *grisea*-, or *sabulosa*-, type. They extend beyond the hind knees for about one-sixth of their length.

The genitalia of the female suggest affinity to the group including *P. grisea*, *intermedia* and *sabulosa*. The 7th sternite resembles that of certain specimens of *P. intermedia*, though in *P. pathana* the cross-ridge is closer to the hind margin. This ridge is little pronounced and appears to be slightly more distinct laterally, thus recalling *P. sabulosa*. The subgenital plate is comparatively small and little sculptured, with semicircular lobes and a narrow median furrow, and similar to that found in certain specimens of *P. grisea grisea*.

The ovipositor is exceptionally long and slender for the genus and resembles only one other species, *P. affinis*. It is regularly curved and tapers from near the base, thus appearing acutely pointed.

The coloration and pattern of the unique specimen differ little from those generally observed in other species of *Platycleis*. Head and pronotum are a little more glossy than usual. The yellow edge of the pronotal lobes is practically obliterated. The ovipositor is dark brown with a yellow base. The hind femur shows a straight black line on the outer side of the thickened portion.

Group II.

Fully-winged species, female subgenital plate with wide median furrow and with rounded or slightly pointed lobes.

* 7. *Platycleis falx* (Fabr.).

syn. *Platycleis laticauda* Br. W. (**syn. n.**).

L 1775. *Locusta falx* Fabricius, *Syst. Ent.* : 286, no. 21.
1815. *Conocephalus falx* : Thunberg, *Mém. Acad. Imp. Sci. St. Pétersb.* **5** : 273.
1882. *Platycleis laticauda* Brunner v. Wattenwyl, *Prodr. eur. Orth.* : 349. (Messina, Sicily.)
1927. *Platycleis laticauda* Br. : Ramme, *Eos* **3** : 143, fig. 15i, pl. 6 fig. 9.
1929. *Platycleis laticauda* Br. : Zeuner, *Mitt. zool. Mus. Berlin* **15** : 213, fig. 6.
1930. *Metrioptera* (*Platycleis*) *falx* (Fabricius) : Uvarov, *Ann. Mag. nat. Hist.* (10) **5** : 401, fig. 1.
1938. *Platycleis falx* F. : Chopard, *Rev. franç. Ent.* **4** : 226, fig. 3.

Type Locality. Madeira.

Distribution. Madeira, Azores, Spain, Italy, Sicily, Oran, Algeria, Tunis, Morocco.

Remarks. Uvarov (1930) rediscovered *P. falx* Fabr. which, for some reason, had been overlooked since 1815. He considered it as a species allied to *P. laticauda* Br. and gave a figure of the female subgenital plate of the lectoholotype. I have compared the British Museum material with material of *P. laticauda* from various localities in the Mediterranean region, and come to the conclusion that *laticauda* Br. is a synonym of *falx* Fabr.

The species varies much in size but tends to be large, with a thick head and a slightly swollen prozona of the pronotum.

* 8a. *Platycleis fatima fatima* Uv.

1912. *Platycleis fatima* Uvarov, *Hor. Soc. ent. Ross.* **40** : 37.
1929. *Platycleis fatima* Uv. : Ramme, *in* Zeuner, *Mitt. zool. Mus. Berlin* **15** : 216, fig. 9.
1929. *Platycleis fatima* Uv. : Zeuner, *Mitt. zool. Mus. Berlin* **15** : 214, fig. 8.

Type Locality. Krasnovodsk (Transcaspia).

Distribution. Transcaspia, Turkestan.

8b. *Platycleis fatima angustipennis* (Tarb.).

1932. *Metrioptera fatima angustipennis* Tarbinsky, *Bull. Leningrad Inst. contr. Farm For. Pests* **2** : 191.

Type Locality. Arslan-Bob, Ferghana.

* 9. *Platycleis kashmira* (Uv.).

HP 1930. *Metrioptera* (*Platycleis*) *kashmira* Uvarov, *Ann. Mag. nat. Hist.* (10) **5** : 402, fig. 2.

Type Locality. Perimahal near Srinagar (Kashmir), 1500–1800 m.

Remarks. The 7th sternite of the female has in common with that of *fatima* the two central tubercles and the one near the hind margin. The wings of *kashmira* are somewhat reduced, the elytra are tapering and of the *turanica*-type.

* 10a. *Platycleis escalerai* Bol.

1899. *Platycleis escalerai* Bolivar, *Ann. Soc. ent. Belg.* **43** : 603.
P 1907. *Platycleis iphigeniae* Adelung, *Annu. Mus. zool. St. Pét.* **12** : 409. (Crimea.)
1927. *Platycleis escalerai* Bol. : Ramme, *Eos* **3** : 143, fig. 15h, pl. 6 fig. 8.

1929. *Platycleis escalerai* Bol. : Zeuner, *Mitt. zool. Mus. Berlin* **15** : 212, fig. 6.
1929. *Metrioptera escalerai* Bol. : Miram, *Annu. Mus. zool. Acad. Sci. URSS* **30** : 466, 469, pl. 36 fig. 23. (Synonymises *iphigeniae* with *escalerai*.)

Type Locality. Jenidje-Kalé, Asia Minor.
Distribution. Greece, Macedonia, Crimea, Transcaucasia, Asia Minor, Cyprus, Palestine, Kurdistan.

* 10b. *Platycleis escalerai iranica* Rme.

H 1929. *Platycleis escalerai iranica* Ramme, in Zeuner, *Mitt. zool. Mus. Berlin* **15** : 216. (April 1929.)
1929. *Platycleis escalerai iranica* Ramme : Ramme, *Eos* **5** : 150. (September 1929.)
1930. *Metrioptera escalerai iranica* Ramme : Tarbinsky, *Zool. Anz.* **91** : 329.

Type Locality. Chesme-Ali, Elburs Mts., Persia.
Distribution. Bukhara, Transcaucasia, Armenia, Iran, Mesopotamia, Turkey.

* 11. *Platycleis affinis* Fieb., fig. 21.

1853. *Platycleis affinis* Fieber, *Lotos* **3** : 150.
1873. *Platycleis boscae* Bolivar, *An. Soc. espăn. Hist. nat.* **2** : 228, pl. 9 fig. 6.
1876. *Platycleis affinis* Fieb. : Bolivar, *Syn. Ortopt. Esp. Port.* : 246. (Synonymises *boscae* with *affinis*.)
1922. *Metrioptera affinis* (Fieb.) : Chopard, *Faune de France* **3** : 83, 62, figs. 217, 218.
1927. *Platycleis affinis* Fieb. : Ramme, *Eos* **3** : 142, fig. 15g, pl. 6 fig. 7.
1929. *Platycleis affinis* Fieb. : Zeuner, *Mitt. zool. Mus. Berlin* **15** : 210, figs. 2 and 4.
1929. *Metrioptera affinis* Fieb. : Miram, *Annu. Mus. zool. Acad. Sci. URSS* **30** : 466, 468, pl. 36 fig. 22.

Type Locality. " South Europe."
Distribution. Morocco, Spain, south France, Italy, Neusiedler See, Hungary, Serbia, Dalmatia, Macedonia, Greece, Asia Minor, Syria, Caucasus, Transcaucasia, Semiretchie, south Russia.

12. *Platycleis longicauda* Tarb.

1930. *Metrioptera longicauda* Tarbinsky, *Zool. Anz.* **91** : 328, fig. 1.

Type Locality. Dzhefarkhan (north Muganj, Transcaucasia).
Remarks. This species is tentatively placed in group II on account of the wide furrow of the female subgenital plate. The duplication of the central tubercle of the 7th sternite suggests affinity with *P. mesopotamica*.

Group III.

Fully-winged species, female subgenital plate large, with fairly narrow median furrow and shortened, squarely truncate lobes.

* 13. *Platycleis romana* Rme., fig. 15.

HP 1927. *Platycleis romana* Ramme, *Eos* **3** : 142, fig. 15, pl. 6 fig. 6.
1929. *Platycleis romana* Ramme : Zeuner, *Mitt. zool. Mus. Berlin* **15** : 214, fig. 7.
1931. *Platycleis romana* Ramme : Ramme, *Mitt. zool. Mus. Berlin* **17** : 178.

Type Locality. Mt. Albano near Rome, Italy.
Distribution. Middle Italy, Pontine Marshes, Florence, Liguria, Genova, Varinella.

* 14. **Platycleis iberica** sp. n., fig. 16.

Diagnosis. Closely related to *P. romana*, but smaller. Fully-winged, but elytra hardly reaching the hind knees, distinctly tapering apically, of the *turanica*-type.

Female with 7th sternite less gibbous that in *P. romana*. Ovipositor slender, long, and only slightly curved, reaching far beyond the hind knees.

Types. Holotype (female) and paratypes (2 females, 3 males) in British Museum (Natural History). Paratypes (1 male, 1 female) in coll. Zeuner.

Type Locality. Sierra de Gredos, Spain.

Measurements in mm.

	P. iberica sp. n. ♀ Holotype	*P. romana* Rme. Rome.
Head–abdomen	20·5	23·3
Head–tip of elytra	26·2	37·0
Head–tip of ovipositor	31·4	31·8
Elytra	20·0	29·2
Ovipositor	12·0	9·8
Hind femur	19·1	25 6

Group IV.

Elytra shorter than half the abdomen. Female subgenital plate with narrow median furrow. Ovipositor dark, except at base. (This is possibly a heterogeneous group, exhibiting the characters of the genus, except that the wings are strongly reduced.)

* 15. *Platycleis iljinskii* Uv.

1917. *Platycleis iljinskii* Uvarov, *Izw. Kawkaz. Muz.* **11** : 13, fig. 10.
1938. *Metrioptera iljinskii* Uvarov : Miram, *Trud. zool. Inst. Baku* **8** : 41, fig. 10.

Type Locality. Karmalinovka, Nachičevan distr., 2000 m.
Distribution. Caucasus.

* 16. *Platycleis heinrichi* (Rme.).

H 1929. *Metrioptera heinrichi* Ramme, *Eos* **5** : 150, fig. 4, pl. 4 fig. 3.

Type Locality. Kiassar, Elburs Mts., north Iran.
Remarks. Tentatively placed here.

* 17. *Platycleis pamirica* (Rme.).

H 1930. *Metrioptera pamirica* Ramme, *Mitt. zool. Mus. Berlin* **16** : 209, fig. 1, pl. 1 fig. 6.

Type Locality. Altin-Masar, Pamir.
Distribution. Neighbourhood of Mt. Karateghin, Pamir, 1850–2800 m.
Remarks. Tentatively placed here.

* 18. *Platycleis alexandra* (Uv.).

P 1927. *Metrioptera alexandra* Uvarov, *Rev. russe Ent.* **21** : 6, fig. 1.
1928. *Metrioptera alexandra* Uvar. : Tarbinsky, *Izw. Kurs. Prikl. zool. Leningrad* **4** : 51.

Type Locality. Alexandrovsky Range, Turkestan, 1100 m.
Distribution. Mountains of eastern Turkestan.

GROUP V.

Fossil species with fully developed elytra. Body incompletely known. Referable to group I, II, or III.

* 19. *Platycleis pongráczi* Znr.

HP 1929. *Platycleis pongráczi* Zeuner, *Palaeont. Z.* **11** : 140, fig. 2.
1939. *Platycleis pongráczi* Zeuner, *Foss. Orth. Ensifera* : 250, pl. 44 fig. 7, pl. 66 fig. 4.

Type Locality. Lower Miocene : Radoboj, Croatia.

* 20. *Platycleis speciosa* (Heer).

L 1865. *Decticus speciosus* Heer, *Urwelt Schweiz* : 366, fig. 222.
1932. *Platycleis speciosa* (Heer) : Zeuner, *Beitr. natwiss. Erforsch. Badens* **9** : 144, figs. 1–3.
1939. *Platycleis speciosa* (Heer) : Zeuner, *Foss. Orth. Ensifera* : 250, pl. 44, fig. 6, pl. 66 fig. 3.

Type Locality. Upper Miocene : Oeningen (Baden).
Distribution. Upper Miocene : south-west Germany.

5. Squamiana gen. n.

Genotype. Platycleis squamiptera Uvarov.

Diagnosis. Fairly large. Elytra shorter than pronotum. Pronotum with rounded edges, its back convex or slightly inflated in prozona, flat and with a median carina in the metazona. Hind femora moderately strong. Hind tibiae thin at the knee, then high, and laterally compressed.

Female 6th and 7th sternites gibbous. Subgenital plate without median furrow, lateral lobes rounded. Ovipositor about half as long as hind femur, dark, yellow at the base.

Remarks. This genus appears to be related to the *falx*-group of *Platycleis*.

* 1. *Squamiana squamiptera* (Uv.).

1912. *Platycleis squamiptera* Uvarov, *Hor. Soc. ent. Ross.* **40** : 36.
1930. *Metrioptera squamiptera* (Uvarov) : Tarbinsky, *Zool. Anz.* **91** : 330, fig. 2.

Type Locality. Repetek (doubtful).
Distribution. Transcaspia.

* 2. **Squamiana** sp. n. (Ramme *in litt.*).

Distribution. Asia Minor.

6. Alticolana gen. n.

Genotype. Metrioptera alticola Tarb.

Diagnosis. Size medium. Elytra shorter than pronotum. Lateral edges of pronotum rounded. Hind legs well developed, but not excessively long, length of femur about equal to that of body. Coloration mottled grey and brown, as in *Platycleis*.

Female 7th sternite enlarged, broader than others, convex, with two sublateral tubercles which, however, are not prominent but pressed down to point backwards. The tips of the tubercles thus lie above the hind margin of this sternite. Subgenital plate small, with small lobes, much raised in the middle near the base, with a shallow, comma-shaped furrow. Ovipositor about half as long as hind femur, of the *Platycleis*-type.

* 1. *Alticolana alticola* (Tarb.).

P 1930. *Metrioptera alticola* Tarbinsky, *Zool. Anz.* **91** : 331, fig. 3.

Type Locality. Arslan-Bob, Ferghana, 2600–3200 m.
Distribution. Ferghana and Semiretchie.
Remarks. Possibly related to *Platycleis fatima* of the *falx*-group.

7. Sepiana gen. n.

Genotype. Platycleis sepium Yersin.

Diagnosis. Size medium to large. Elytra shortened or fully developed (in this case of the *Platycleis*-type). Pronotum smooth, without lateral keels, rounded, humeral excision absent, yellow margin of lobes very narrow. Hind femora very long.

Male cerci tending to be broad and flattened.

Female subgenital plate variable. Ovipositor regularly recurved, dark or light-coloured.

Remarks. In spite of the great variation in the genitalia, the species here included appear to form a natural unit, characterised chiefly by the peculiar pronotum. Probably closely related to *Platycleis* Fieb.

* 1. *Sepiana sepium* (Yers.), fig. 6.

1854. *Platycleis sepium* Yersin, *Bull. Soc. Vaud.* **4** : 68, pl. 2 figs. 6–12.
1922. *Metrioptera sepium* (Yers.) : Chopard, *Faune de France* **3** : 86, 58, figs. 193, 198.

Type Locality. Nice.
Distribution. South France, Italy, Balkan peninsula, Asia Minor, western Caucasus.

* 2. *Sepiana modesta* (Fieb.), fig. 5.

1853. *Platycleis modestus* Fieber, *Lotos* **3** : 153.

Type Locality. Triest, or Linz.
Distribution. Istria, Dalmatia, Bosnia, Herzegowina.

* 3. *Sepiana ebneri* (Rme.).

H 1926. *Metrioptera ebneri* Ramme, *Deuts. ent. Z.* **1926** : 285, fig. 9a. (Male.)
H 1926. *Metrioptera dofleini* Ramme, *Deuts. ent. Z.* **1926** : 287, fig. 10b. (Female; Tetovo, Macedonia.)
1931. *Metrioptera dofleini* Ramme : Ramme, *Mitt. zool. Mus. Berlin* **17** : 181. (Synonymises *ebneri* with *dofleini*.)
1933. *Metrioptera ebneri* Rme. : Ramme, *Mitt. zool. Mus. Berlin* **18** : 423. (*ebneri* has page-precedence over *dofleini*.)

Type Locality. Tetovo, Macedonia.
Distribution. Macedonia.
Remarks. The holotype of the species is the male described as *ebneri* by Ramme, 1926. It is not feasible to transfer the designation " holotype of *ebneri* " to the holotype of *dofleini* Rme., as was suggested by Ramme in 1933.

* 4. *Sepiana bodenheimeri* (Uv.).

H 1927. *Metrioptera bodenheimeri* Uvarov, *Konowia* **6** : 120, fig. 1.

Type Locality. Emek, Palestine.
Remarks. Although fully winged and in habitus reminiscent of *Platycleis*

Fieb., the structure of the pronotum is that of *Sepiana*, and the peculiar male cerci may be derived from those of *S. sepium*. The position of this species, however, remains doubtful so long as the female is unknown.

5. *Sepiana kraussi* (Pad.).

1900. *Platycleis kraussi* Padewieth, *Glasn. Hrvats. naravoslov. Društ. Zagreb* **11** : 30.

Type Locality. Sv. Križ near Fiume, Croatia.

Remarks. Said to be most closely allied to *modesta*. Description insufficient and contradictory. Tentatively placed here.

8. Tessellana gen. n.

Genotype. *Locusta tessellata* Charp.

Diagnosis. Size small to medium. Elytra fully developed and very slender, or reduced. A row of black markings between R and M, separated by oblique cross-veins, is universally present. Pronotum as in *Platycleis* and *Montana*, slightly depressed above, with fairly distinct lateral keels which converge anteriorly. Hind legs variable in size, but never short. Coloration strawy-yellow to mottled brown.

Male last tergite with two *short* processes.

Female last sternite with a sharp, longitudinal ridge. Subgenital plate with a median furrow. Ovipositor very short, rapidly tapering and sharply bent upwards near the base. About as long as the pronotum.

Remarks. This genus is easily recognisable by its ovipositor and the markings of the elytra. It is closely allied to *Platycleis* on the one hand, and to *Incertana* on the other.

* 1. *Tessellana tessellata* (Charp.), fig. 30.

1825. *Locusta tessellata* Charpentier, *Hor. ent.* : 121, pl. 3 fig. 4.
1922. *Metrioptera tessellata* (Charp.) : Chopard, *Faune de France* **3** : 83, 61, figs. 207, 208.

Type Locality. " Gallia meridionalis, Lusitania."

Distribution. Canaries, Morocco, Algeria, Spain, Portugal, south France, south-west Germany, Italy, Sardinia, Sicily, Balkan peninsula, south Russia, Turkey, Palestine.

* 2. *Tessellana vittata* (Charp.).

1825. *Locusta vittata* Charpentier, *Hor. ent.* : 115.

Type Locality. Hungary.

Distribution. Balkan peninsula, south Russia, Asia Minor, north Persia, Transcaucasia, Turkestan.

* 3. *Tessellana nigrosignata* (Costa).

1863. *Decticus nigrosignatus* Costa, *Atti Acad. Sci. Napoli* **1** (2) : 30, pl. 3 figs. 3, 3c, 4.
P 1899. *Platycleis orina* Burr, *Ent. Rec.* **11** : 20.
1908. *Metrioptera oreina* Burr : Caudell, *Gen. Ins.* **72** : 32. (Misspelling.)
1912. *Platycleis orina* Burr : Karny, *Wien. ent. Ztg* **31** : 292. (Identifies *nigrosignata* with *orina*, but uses latter name.)
1922. *Metrioptera carinata* Berland & Chopard, *Bull. Mus. Hist. nat. Paris* **28** : 231, fig. 5. (Vakoufköi, N.-E. of Florina, Macedonia.)

1924. *Metrioptera nigrosignata* (Costa): Uvarov, *Trans. ent. Soc. Lond.* **1923**: 531. (Synonymises *carinata* with *nigrosignata*.)

Type Locality. "Calabria ulteriore."
Distribution. Balkan peninsula, and Calabria.

4. *Tessellana seniae* (Fin.).

1893. *Platycleis seniae* Finot, *Bull. Soc. ent. France* **1893**: ccli.
1896. *Platycleis seniae* Finot: Finot, *Ann. Soc. ent. France* **65**: 535.

Type Locality. Hamam-bou-Hadjar, la Sénia, Oran.
Distribution. Algeria.
Remarks. According to author, allied to *T. nigrosignata*. Tentatively placed here.

9. Incertana gen. n.

Genotype. Platycleis incerta Brunner v. Wattenwyl.

Diagnosis. Size small to medium. Elytra fully developed and slender, or reduced. A row of black markings between R and M is often present. Pronotum flat above, not distinctly depressed, more rounded than in *Tessellana* gen. n., lateral keels indistinct. Hind legs long. Coloration strawy-yellow to mottled brown, as in *Tessellana*.

Male last tergite with two long spines which almost reach the apex of the cerci.

Female 7th sternite with round, or transverse, bulge. Subgenital plate hardly incised, with median carina in a very shallow depression.

Remarks. Closely allied to *Tessellana* gen. n.

* 1. *Incertana persica* (Uv.).

1917. *Platycleis persica* Uvarov, *Izw. Kawkaz. Muz.* **11**: 11, fig. 9.

Type Locality. Teheran (Persia).
Distribution. Persia, Mesopotamia.

* 2. *Incertana incerta* (Br. W.), fig. 31.

1882. *Platycleis incerta* Brunner v. Wattenwyl, *Prodr. eur. Orth.*: 352.
1901. *Platycleis truncata* Werner, *Sitzb. Akad. Wiss. Wien* **110**: 296, pl. 1 fig. 3. (Constantinople.)
1922. *Metrioptera minuta* Berland & Chopard, *Bull. Mus. Hist. nat. Paris* **28**: 232, figs. 6, 7. (Isvor, Macedonia.)
1924. *Metrioptera truncata* (Wern.): Uvarov, *Trans. ent. Soc. Lond.* **1923**: 529. (Synonymises *minuta* with *truncata*.)
1933. *Metrioptera incerta* (Br.): Ramme, *Mitt. zool. Mus. Berlin* **18**: 424. (Synonymises *truncata* with *incerta*.)

Type Locality. Unknown. *Not* Rhenish Prussia.
Distribution. Balkan peninsula, Crete, Asia Minor.

3. *Incertana chopardi* (Jann.).

1936. *Metrioptera chopardi* Jannone, *R. Lab. ent. Agr. Portici, Faun. Isol. Ital. Egeo* **5**: 136, fig. 21.

Type Locality. Torrente di Rodino, Tomba di Tolomeo, Asgura, Rhodes.
Distribution. Rhodes and Coo, off the coast of Asia Minor.
Remarks. Not allied to *Sporadiana brevipes* (Uv.) as suggested by Jannone. Probably closely related to, or even identical with, *I. incerta* (Br. W.).

* 4. *Incertana erecta* (Uv.).

H 1939. *Metrioptera erecta* Uvarov, *Ann. Mag. nat. Hist.* (11) **4** : 224, fig. 4.

Type Locality. Ras el Ain, near Lydda, Palestine.

10. **Decorana** gen. n.

Genotype. Platycleis decorata Fieber.

Diagnosis. Size medium. Elytra as long as, or shorter than, pronotum. Pronotum rounded, without lateral keels, its dorsal portion broad, hardly flattened. Hind femora of normal length, strongly swollen near base. Coloration brown with black.

Male cerci with spine in the distal third.

Female subgenital plate bilobate, normally emarginate at the apex (truncate in *D. buxtoni*). Ovipositor suddenly recurved at base and thence straight, or very nearly straight throughout and slender. Length varying from $\frac{1}{2}$ to $\frac{3}{4}$ of the length of the hind femur.

Remarks. Perhaps a heterogeneous genus. In spite of widely different distribution, *D. decorata* and *capitata* appear to be closely allied, and *concinna* possibly belongs here also. *D. buxtoni*, with its long ovipositor and truncate subgenital plate, may have to be placed in a different genus.

* 1. *Decorana decorata* (Fieb.), fig. 25.

1853. *Platycleis decoratus* Fieber, *Lotos* **3** : 151.
1876. *Platycleis andalusicus* Bolivar, *Orth. Esp.* : 245, 249. (Andalusia.)
1882. *Platycleis decorata* Fieb. : Brunner v. Wattenwyl, *Prodr. eur. Orth.* : 355. (Synonymises *andalusicus* with *decorata*.)
1932. *Pterolepis nadigiorum* Werner, *Zool. Anz.* **100** : 116. (El Hajeb, Morocco.)
1933. *Metrioptera decorata* (Fieb.) : Werner, *Zool. Anz.* **103** : 84. (Synonymises *nadigiorum* with *decorata*.)

Type Locality. " Spain."
Distribution. Spain, Portugal, Morocco.

* 2. *Decorana capitata* (Uv.).

1917. *Platycleis capitata* Uvarov, *Izw. Kawkaz. Muz.* **11** : 15, fig. 13.
1933. *Metrioptera capitata* Uv. : Bey-Bienko, *Bol. Soc. Esp. Hist. nat.* **33** : 320, figs. 3–5.

Type Locality. Astrabad, north Persia.
Distribution. North Persia, eastern Transcaucasia.

* 3. *Decorana concinna* (Walk.).

H 1869. *Decticus concinnus* Walker, *Cat. Derm. Salt. Brit. Mus.* **2** : 260.
1930. *Metrioptera concinna* (Walker) : Uvarov, *Ann. Mag. nat. Hist.* (10) **5** : 404, fig. 4.

Type Locality. " Nepaul."

4. *Decorana himalayana* (Rme.).

1933. *Metrioptera himalayana* Ramme, *Mitt. zool. Mus. Berlin* **18** : 423, pl. 12 fig. 4.

Type Locality. Simla, north India.

* 5. *Decorana buxtoni* (Uv.), fig. 24.

H 1923. *Metrioptera buxtoni* Uvarov, *Ent. mon. Mag.* (3) **9** : 34.
1939. *Metrioptera buxtoni* Uv. : Ramme, *Mitt. zool. Mus. Berlin* **24** : 123, fig. 47, pl. 3 fig. 9.

Type Locality. Jerusalem.

Distribution. Palestine.

Remarks. The male described by Ramme is reminiscent of *Incertana.* It is not certain whether it belongs to *D. buxtoni.*

6. *Decorana kabila* (Fin.).

1893. *Platycleis kabila* Finot, *Bull. Soc. ent. France* **1893** : ccli.
1896. *Platycleis kabila* Finot : Finot, *Ann. Soc. ent. France* **65** : 536.
1906. *Chelidoptera kabyla* Finot : Kirby, *Syn. Cat. Orth.* **2** : 205. (Misspelling.)

Type Locality. Chabet-el-Ameur, Algeria.

Remarks. According to author, allied to *D. decorata.* Tentatively placed here.

11. **Sporadiana** gen. n.

Genotype. Metrioptera brevipes Uvarov.

Diagnosis. Size small to medium. Elytra reduced, as long as, or shorter than, pronotum. Pronotum well rounded, but dorsal portion very narrow. Hind femora very short, much swollen in the basal two-thirds. Coloration mottled brown.

Ovipositor curved at the base, thence straight and slender.

* 1. *Sporadiana brevipes* (Uv.), fig. 23.

H 1934. *Metrioptera brevipes* Uvarov, *Eos* **10** : 68, fig. 14.

Type Locality. Ali-Agha, north of Menemen, Smyrna province.

* 2. *Sporadiana sporadarum* (Wern.).

1933. *Platycleis sporadarum* Werner, *Sitzb. Akad. Wiss. Wien* **142** : 192.
1939. *Metrioptera sporadarum* (Wern.) : Ramme, *Mitt. zool. Mus. Berlin* **24** : 122, fig. 46.

Type Locality. Mytilene.

Distribution. Mytilene and Chios, off the coast of Anatolia.

12. *Eumetrioptera* Mir.

1935. *Eumetrioptera* Miram, *Trav. filiale Acad. Sci. URSS Tadjikistan* **5** : 223.

Genotype. Eumetrioptera pavlovskyi Miram.

Diagnosis. Size medium. Elytra not exceeding 3rd abdominal tergite. Pronotum broad, well rounded, lateral keels entirely absent, median carina on metazona absent or hardly indicated. Hind legs very short and stout. Plantulae very short. Coloration distinctive. Lateral lobes of pronotum black with bright yellow margin. Hind knee black.

Male cerci thick, with subapical tooth.

Female last sternite with two tubercles near the hind margin. Subgenital plate small, with median furrow. Lobes much reduced, truncate. Ovipositor sickle-shaped, broad, and regularly curved, dark with yellow base.

Remarks. The shape of the pronotum reminds one of *Pholidoptera,* though it is very short. The coloration resembles that of *Pholidoptera schmidti* (Fieb.). The ovipositor, however, is of the *Platycleis*-type.

* 1. *Eumetrioptera pavlovskyi* Mir., fig. 10.

P 1935. *Eumetrioptera pavlovskyi* Miram, *Trav. filiale Acad. Sci. URSS Tadjikistan* **5** : 223, figs. 1–3.

Type Locality. Chan-Tachta, Hissar Mts., Tadjikistan, 2500 m.

13. *Metrioptera* Wesm.

1835. *Micropteryx* Stephens, *Ill. Brit. Ent.* **6** : 12 (*partim*).
1838. *Metrioptera* Wesmael, *Bull. Acad. Sci. Bruxelles* **5** : 592. (Subgenus of *Decticus*, erected for *Gryllus brachypterus* L.)
1852. *Platycleis* Fieber, *in* Kelch, *Grundl. Orth. Oberschles.* : 5 (*partim*).
1853. *Metriophora* Wesmael : Fischer, *Orth. Eur.* : 269, 273. (*Partim.*—The name is obviously due to a mistake, for *Metrioptera* Wesm.—Fischer mentions that *Micropteryx* Steph. is preoccupied.)
1906. *Chelidoptera* Wesm. : Kirby, *Syn. Cat. Orth.* **2** : 203. (*Partim*, see *Platycleis* Fieb.)
1908. *Metrioptera* Wesmael : Caudell, *Gen. Ins.* **72** : 30 (*partim*).
1924. *Metrioptera* Wesm. : Uvarov, *Trans. ent. Soc. Lond.* **1923** : 528 (*partim*).
1927. *Metrioptera* Wesm. : Ramme, *Eos* **3** : 136. (*Partim.*—Eliminates *Platycleis* Fieb. and considers the remainder as a collective genus.)
1929. *Metrioptera* Wesm. : Zeuner, *Mitt. zool. Mus. Berlin* **15** : 205 (*partim*).
1930. *Metrioptera* Wesm. : Tarbinsky, *Zool. Anz.* **91** : 327 (*partim*).

Genotype. Gryllus brachypterus Linnaeus.

Diagnosis. Size medium. Elytra normally shorter than abdomen. Pronotum with more or less flat disc which narrows anteriorly, lateral keels smoothed out. Coloration usually deep green or dark brown, or combination of these. Yellow edge of pronotal lobes restricted to hind margin, or replaced by an indistinct light marginal band. Ovipositor dark, with yellow base.

Female subgenital plate bilobate, broad and in the typical species almost smooth, with triangular excision of varying depth. Ovipositor regularly curved upwards, half as long as abdomen, or longer, never angularly recurved and short as in *Roeseliana* and *Bicolorana*.

Remarks. The name *Metrioptera* Wesm. has been used by many authors to include the whole group of species with which the present paper is concerned. Wesmael established the name for *Gryllus brachypterus* L., and it has never been disputed that this is the genotype. In this paper, only such species have been retained in *Metrioptera* as are closely allied to the genotype.

The genus is best represented by *M. brachyptera* and *saussuriana*. Some species tend to resemble *Bicolorana*, having an elongated female subgenital plate (*M. buyssoni*, *engelhardti*), whilst in others the lobes of this plate become individualised and strongly sculptured, reminding one of *Roeseliana* (*M. abbreviata*, *bonneti*). The ovipositor, however, always enables one to rule out the mentioned genera.

* 1a. *Metrioptera brachyptera brachyptera* (L.), fig. 7.

1761. *Gryllus brachypterus* Linnaeus, *Fauna Sueciae*, 2nd ed. : 237.
1829. *Anisoptera brachyptera* : Latreille, *in* Cuvier, *Règne Animal*, 2nd ed., **5** : 184 footnote.
1835. *Micropteryx brachyptera* : Stephens, *Ill. Brit. Ent.* **6** : 13.
1846. *Decticus tibialis* Fischer de Waldheim, *Orth. Ross.* : 168, pl. 29 fig. 5.
1852. *Platycleis brachypterus* F. : Fieber, *in* Kelch *Grundl. Orth. Oberschles* : 2.
1853. *Platycleis brachyptera* : Fieber, *Lotos* **3** : 152.
1853. *Platycleis alpinus* Fieber, *Lotos* **3** : 151.
1873. *Platycleis pachypterus* Rudow, *Z. Naturwiss.* **1873** : 152.
1882. *Platycleis brachyptera* L. : Brunner v. Wattenwyl, *Prodr. eur. Orth.* : 356. (Synonymises *alpinus* with *brachyptera*.)
P 1899. *Platycleis raia* Burr, *Ent. Rec.* **11** : 19 (*partim*).
1906. *Chelidoptera brachyptera* Linn. : Kirby, *Syn. Cat. Orth.* **2** : 209. (Synonymises *pachypterus* with *brachyptera*.)

1921. *Platycleis brachyptera* forma *restricta* Fruhstorfer, *Arch. Naturgesch.* **87** (A) (5) : 220. (St. Moritz, Engadin. Dark green and brown specimens. **Syn. n.**)
1921. *Platycleis brachyptera* forma *rhaetorum* Fruhstorfer, *Arch. Naturgesch.* **87** (A) (5) : 220. (Pontresina, Engadin. Brown specimens. **Syn. n.**)
1921. *Platycleis brachyptera* forma *deminuta* Fruhstorfer, *Arch. Naturgesch.* **87** (A) (5) : 221. (Lake Geneva, Villeneuve. Small specimens. **Syn. n.**)
1922. *Metrioptera brachyptera* (L.) : Chopard, *Faune de France* **3** : 84, 60, figs. 201, 206.
1924. *Metrioptera brachyptera* (L.) : Uvarov, *Trans. ent. Soc. Lond.* **1923** : 531. (Synonymises *raia* with *brachyptera*.)
1932. *Metrioptera* (in sp.) *brachyptera* Linn. : Tarbinsky, *Bull. Leningrad Inst. contr. Farm For. Pests* **2** : 191.

Type Locality. Sweden.
Distribution. Britain. From France to east Europe and north to Lappland, Alps, Siberia to Amur province and Kamchatka. Probably very local in France. I have seen only one specimen from France (Vosges), where it appears to be replaced by a small form of *M. saussuriana* Fr.-G.

* 1b. *Metrioptera brachyptera* f. *marginata* Thbg.

1815. *Locusta marginata* Thunberg, *Mém. Acad. Sci. St. Pétersb.* **5** : 283.
1874. *Platycleis brachyptera* var. *macroptera* Stål, *Rec. Orth.* **2** : 111. (Sweden.)
1926. *Metrioptera insignita* Bey-Bienko, *Bull. Soc. geogr. Sib.* **5** : 3. (Kazatshinskoye, Enisei prov.)
1932. *Metrioptera brachyptera* f. *macroptera* : Tarbinsky, *Bull. Leningrad Inst. contr. Farm For. Pests* **2** : 191. (Synonymises *insignita* with *marginata* Thbg.)

Type Locality. Not given by Thunberg.
Distribution. Macropterous form, very rare. Among normal specimens throughout the area of the species.

* 2. *Metrioptera saussuriana* Frey-Gessn.

1872. *Platycleis saussuriana* Frey-Gessner, *Mitt. schweiz. ent. Ges.* **4** : 8, pl. 1 figs. 1a, b.
1882. *Platycleis saussaureana* Frey : Brunner v. Wattenwyl, *Prodr. eur. Orth.* : 357.
1887. *Platycleis noui* Saulcy, *Bull. Soc. Hist. nat. Metz* (2) **17** : 190. (Canigou, Pyrenees.)
1900. *Platycleis saussaurea* Frey-Gessn. : Tümpel, *Geradfl. Mitteleurop.* : 265.
1921. *Platycleis saussureana* forma *rugosa* Fruhstorfer, *Arch. Naturgesch.* **87** (A) (5) : 223. (Mt. Curfirsten, Switzerland. Large specimens with green elytra. **Syn. n.**)
1922. *Metrioptera abbreviata* (Serv.) : Chopard, *Faune de France* **3** : 84, 60, figs. 200, 205.

Type Locality. St. Luc, Annivier valley, Switzerland.
Distribution. France, Jura Mountains, Alps, Switzerland. Reported from the Apennines. The distribution of this species needs checking.
Remarks. The name *abbreviata* Serv. (syn. *marqueti* Saulcy) has been wrongly applied to this species.

* 3. *Metrioptera buyssoni* Saulcy.

1887. *Platycleis buyssoni* Saulcy, *Bull. Soc. Hist. nat. Metz* (2) **17** : 190.
1922. *Metrioptera buyssoni* (Saulcy) : Chopard, *Faune de France* **3** : 85, 57, figs. 188, 190, 192.

Type Locality. Bagnères de Luchon, Haute Garonne.
Distribution. Pyrenees, Puy-de-Dome, Alps, Vosges.

* 4. *Metrioptera engelhardti* Uv.

P 1926. *Metrioptera engelhardti* Uvarov, *Ann. Mag. nat. Hist.* (9) **17** : 281, fig. 7.

Type Locality. Russian Island near Vladivostok.
Remarks. Apparently often, or even normally, macropterous.

* 5. *Metrioptera prenjica* (Burr), fig. 8.

P 1899. *Platycleis prenjica* Burr, *Ent. Rec.* **11** : 20.
1912. *Platycleis raia* Burr : Karny, *Wien. ent. Ztg* **31** : 295. (Misidentification.)
1924. *Metrioptera prenjica* (Burr) : Uvarov, *Trans. ent. Soc. Lond.* **1923** : 532, pl. 28 fig. 26.

Type Locality. Tisovica valley, Prenj planina, Herzegovina.

6. *Metrioptera karnyana* Uv.

1912. *Platycleis prenjica* Burr : Karny, *Wien. ent. Ztg* **31** : 293. (Misidentification.)
1924. *Metrioptera karnyana* Uvarov, *Trans. ent. Soc. Lond.* **1923** : 532, pl. 28 fig. 27.

Type Locality. Ručevača, Prenj planina, Herzegovina.
Distribution. Prenj planina.

7. *Metrioptera hörmanni* (Wern.).

1906. *Platycleis hörmanni* Werner, *Glasn. Zem. Muz. Bosn. Herc.* **16** : 572.
1912. *Platycleis hörmanni* : Karny, *Wien. ent. Ztg* **31** : 294.

Type Locality. Baba planina, Herzegovina, 1400 m.

* 8. *Metrioptera abbreviata* (Serv.)

(= *Metrioptera marqueti* (Saulcy) ; **syn. n.**)

H 1839. *Decticus abbreviatus* Serville, *Hist. nat. Orth.* : 490.
C 1887. *Platycleis marqueti* Saulcy, *Bull. Soc. Hist. nat. Metz* (2) **17** : 81. (Bagnères de Bigorre, Hautes Pyrénées.)
1922. *Metrioptera marqueti* (Saulcy) : Chopard, *Faune de France* **3** : 85, 57, figs. 187, 189, 191.

Type Locality. Very high mountains near Bagnères.
Distribution. Pyrenees.
Remarks. Serville based his description of *abbreviata* on a single male collected by Rambur near Bagnères. This specimen is in the British Museum (Natural History), as are cotypes (male, female) of *P. marqueti* Saulcy, also caught at Bagnères. The peculiar structure of the last tergite and cercus of the male show that *marqueti* is a synonym of *abbreviata*, and that *abbreviata* has nothing to do with *M. saussuriana* (Fr.-G.) to which the name has been applied erroneously for many years.

9. *Metrioptera burriana* Uv.

1935. *Metrioptera burriana* Uvarov, *Eos* **11** : 75, fig. 2.

Type Locality. Picos de Europa, north Spain, 1500–2000 m.

* 10. *Metrioptera bonneti* (Bol.).

1890. *Platycleis bonneti* Bolivar, *An. Soc. Esp. Hist. nat.* **19** : 326.
1926. *Metrioptera bonneti* (Bol.) : Uvarov, *Ann. Mag. nat. Hist.* (9) **17** : 279, figs. 5, 6.
1933. *Metrioptera bonneti* (I. Bol.) : Uvarov, *Ark. Zool.* **26** : (A) (1) 5.

Type Locality. Yezo.
Distribution. Japan, Maritime province (Russian Far East), central China.

?* 11. *Metrioptera japonica* (Bol.).

1890. *Decticus japonicus* Bolivar, *An. Soc. Esp. Hist. nat.* **19** : 327.
1929. *Metrioptera japonica* (Bol.)? : Bey-Bienko, *Ann. Mag. nat. Hist.* (10) **4** : 542.

Type Locality. Yezo.
Distribution. Japan.
Remarks. Bolivar described the female only. Bey-Bienko described what he supposed to be the male. A male specimen in the British Museum agrees fairly well with Bey-Bienko's description.
Tentatively placed here.

12. *Metrioptera koreana* Mori.

1933. *Metrioptera koreana* Mori, *J. Chosen nat. Hist. Soc.* **16** : 54, pl. 2 fig. 3.

Type Locality. Korea.
Remarks. Description in Japanese only. Large species. Tentatively placed here on account of the shape of the elytra, which is reminiscent of *M. abbreviata* Serv.

14. **Sphagniana** gen. n.

Genotype. *Decticus sphagnorum* Walker.

Diagnosis. Reminiscent of *Roeseliana roeselii* (Hgb.) in size, length of wings, and coloration, but pronotum much widened and enlarged in the metazona, and lateral lobes bent down at a sharp angle. Hind legs comparatively short and weak.

Male with enlarged last tergite, incised in middle, and with two expanded lobes covering the cerci.

Female of genotype with a very small subgenital plate, which is wider than long. Ovipositor long and regularly curved.

* 1. *Sphagniana sphagnorum* (Walk.), fig. 9.

HP 1869. *Decticus sphagnorum* Walker, *Cat. Derm. Salt. Brit. Mus.* **2** : 258.
1894. *Decticus sphagnorum* Walk. : Scudder, *Canad. Ent.* **26** : 183. ("Not a Decticid.")
1906. *Orchelimum sphagnorum* Walk. : Kirby, *Syn. Cat. Orth.* **2** : 274.
1907. *Platycleis fletcheri* Caudell, *Proc. U.S. nat. Mus.* **32** : 403, fig. 87. (Calgary, Alberta.)
1909. *Idionotus brevipes* Walker, *Canad. Ent.* **41** : 143, pl. 7 figs. 3, 3a. (Fort William, Ontario.)
1920. *Idionotus sphagnorum* (F. Walker) : Blatchley, *Orth. N.E. America* : 600, fig. 199. (Reported that Caudell considers *brevipes* and *fletcheri* as synonyms of *sphagnorum*.)
1930. *Metrioptera* (*Metrioptera*) *sphagnorum* (Walker) : Uvarov, *Ann. Mag. nat. Hist.* (10) **5** : 403, fig. 3. (Synonymises *fletcheri* with *sphagnorum*.)
1939. *Metrioptera sphagnorum* (F. Walker) : Hebard, *Trans. Amer. ent. Soc.* **65** : 177.

Type Locality. St. Martin's Falls, Hudson Bay.
Distribution. Canada, from Hudson Bay to Rocky Mountains.
Remarks. Sometimes macropterous.

* 2. *Sphagniana ussuriana* (Uv.).

1926. *Metrioptera* (*Metrioptera*) *ussuriana* Uvarov, *Ann. Mag. nat. Hist.* (9) **17** : 282, fig. 8.

Type Locality. Spassky, Maritime Province.
Distribution. Eastern Siberia.

3. *Sphagniana marmorata* (Fieb.).

1853. *Platycleis marmorata* Fieber, *Lotos* **3** : 259.
1882. *Platycleis marmorata* Fieb. : Brunner v. Wattenwyl, *Prodr. eur. Orth.* : 361.
1939. *Metrioptera marmorata* (Br.) : Ramme, *Mitt. zool. Mus. Berlin* **24** : 109, figs. 36m, 37m.

Type Locality. Between the villages Adria and Chioggia (Illyria).
Distribution. Apart from type locality, at Bestrigna.
Remarks. This and the following species are tentatively attached to *Sphagniana* on the evidence of the male cerci and last tergite. The female subgenital plate, however, appears to be reminiscent of *Roeseliana*.
I have seen no specimens.

4. *Sphagniana amplipennis* (Br. W.).

1882. *Platycleis amplipennis* Brunner v. Wattenwyl, *Prodr. eur. Orth.* : 361.
1939. *Metrioptera amplipennis* (Br.) : Ramme, *Mitt. zool. Mus. Berlin* **24** : 109, figs. 36a, 37a.

Type Locality. ? Belgrade.
Distribution. Belgrade, and Banat.
Remarks. See preceding species.

15. **Bicolorana** gen. n.

Genotype. *Locusta bicolor* Philippi.

Diagnosis. Size medium. Normally short-winged. Pronotum with rounded transition from back to lateral lobes. Hind femora long and slender. Coloration green with unspotted elytra in group I, brown in group II.

Female sternites not sculptured. Subgenital plate longer than wide, sometimes very long and slender apically, incised at the apex. Ovipositor comparatively small and short, bent upwards beyond the apex of the subgenital plate.

Remarks. I have accepted Ramme's arrangement (1939, *Mitt. zool. Mus. Berlin* **24** : 111) in which he calls this unit the " *Metr. bicolor*-group." There is a clear subdivision into the *bicolor*-group proper (*bicolor*, *kuntzeni*, *burri*) and the *oblongicollis*-group (*oblongicollis*, *arnoldi*, *domogledi*). In the latter, the subgenital plate of the female is broader than in the typical group, and in *B. domogledi* the lobes are very long and do not cling to the ovipositor. This " standing off " of the subgenital plate is the chief character of *Roeseliana*, with which *Bicolorana* is connected by this species.

Group I.

Green species with female subgenital plate semi-tubular or semi-conical, slightly incised at the apex.

* 1a. *Bicolorana bicolor bicolor* (Phil.), fig. 26.

1830. *Locusta bicolor* Philippi, *Orth. Berol.* : 24.
1835. *Locusta viennensis* Marshall, *Ann. nathist. Mus. Wien* **1** : 209, pl. 18 fig. 1. (Vienna.)
1853. *Platycleis bicolor* Philipp. : Fieber, *Lotos* **3** : 152. (Synonymises *viennensis* with *bicolor*.)
1922. *Metrioptera bicolor* (Phil.) : Chopard, *Faune de France* **3** : 85, 56, figs. 182, 185, 186.
1939. *Metrioptera bicolor* (Phil.) : Ramme, *Mitt. zool. Mus. Berlin* **24** : 111, fig. 38b, pl. 3 fig. 3.

Type Locality. Berlin.
Distribution. France, Germany, east and south-east Europe, Mugadshary (south Ural Mts.), Semiretchie, Minussinsk, Tobolsk, Amur, Altai, northern Mongolia.

* 1b. *Bicolorana bicolor* f. *sieboldii* (Fisch.).

1849. *Decticus sieboldii* Fischer, *Jber. Mannheim. Ver. Natk.* **15** : 46.

Type Locality. ? East Prussia.
Distribution. Throughout the area of the typical form, rare.

* 2. *Bicolorana kuntzeni* (Rme.).

H 1931. *Metrioptera kuntzeni* Ramme, *Mitt. zool. Mus. Berlin* **17** : 181, fig. 5, pl. 1 fig. 2.
1939. *Metrioptera kuntzeni* Rme.: Ramme, *Mitt. zool. Mus. Berlin* **24** : 111, fig. 38k, pl. 3 fig. 4.

Type Locality. Monte Maggiore, Istria, 1200 m.

* 3. *Bicolorana burri* (Uv.).

1921. *Metrioptera burri* Uvarov, *Ent. mon. Mag.* **57** : 50.
1939. *Metrioptera burri* Uv.: Ramme, *Mitt. zool. Mus. Berlin* **24** : 112, fig. 39, pl. 3 fig. 5.

Type Locality. Geok-Tapa, Elizavetpol prov., Transcaucasia.
Distribution. Transcaucasia.

Group II.

Brown species with female subgenital plate deeply incised at the apex.

* 4. *Bicolorana oblongicollis* (Br. W.).

1882. *Platycleis oblongicollis* Brunner v. Wattenwyl, *Prodr. eur. Orth.* : 360.
1922. *Pholidoptera albanica* Csiki, *Magyar. Tud. Akad. Balk. Kutat. tud. Eredm. Budapest* **1** (6) : 81. (Ploštan, Albania.)
1931. *Metrioptera oblongicollis* (Br.): Ramme, *Mitt. zool. Mus. Berlin* **17** : 183. (Synonymises *albanica* with *oblongicollis*.)
1939. *Metrioptera oblongicollis* (Br.): Ramme, *Mitt. zool. Mus. Berlin* **24** : 115, fig. 41.

Type Locality. Between Nish and Akpalanka, Serbia.
Distribution. Albania, Serbia, Macedonia.

* 5. *Bicolorana arnoldi* (Rme.), fig. 27.

1882. *Platycleis domogledi* Brunner v. Wattenwyl, *Prodr. eur. Orth.* : 360. (*Partim*, see Ramme, 1939.)
P 1933. *Metrioptera arnoldi* Ramme, *Mitt. zool. Mus. Berlin* **18** : 422, pl. 12 fig. 3.
1939. *Metrioptera arnoldi* Rme.: Ramme, *Mitt. zool. Mus. Berlin* **24** : 113, fig. 40a.

Type Locality. Pirin, El Tepe, Bulgaria.
Distribution. Bulgaria, south Serbia.

* 6. *Bicolorana domogledi* (Br. W.).

1882. *Platycleis domogledi* Brunner v. Wattenwyl, *Prodr. eur. Orth.* : 360.
1939. *Metrioptera domogledi* (Br.): Ramme, *Mitt. zool. Mus. Berlin* **24** : 113, fig. 40d.

Type Locality. Domogled near Mehadia.
Distribution. Domogled, Belgrade, Serbian Danube area.
Remarks. The female subgenital plate stands off as in *Roeseliana*. Its affinities, however, are obviously with *B. arnoldi* and *oblongicollis*.

16. Roeseliana gen. n.

Genotype. *Locusta roeselii* Hagenbach.

Diagnosis. Size medium to fairly large. Elytra normally covering $\frac{1}{2}$ to $\frac{2}{3}$ of the

abdomen, with broad apex. Pronotum somewhat variable, with lateral carinae indicated or not. Hind femora of medium length.

Chiefly green, though sometimes brown. The yellow edge of the lateral lobes of the pronotum is very marked, bright yellow or yellowish-green. Elytra never spotted, but often with black longitudinal veins.

Male with very broad anal segment, large and broad subgenital plate and long and prominent cerci carrying a tooth in the distal third.

Female with large, deeply bilobate subgenital plate which, at the sides, does not touch the ovipositor. It invariably " stands off." Ovipositor short and strongly curved, somewhat angular at one-third from the base, dark with yellow base, or yellow with dark edges.

Remarks. Ramme (1939 : 116) calls this the *Metrioptera roeselii*-group.

* 1a. *Roeseliana roeselii roeselii* (Hgb.), fig. 28.

1749. (no name): Roesel, *Ins. Belust.* **2**, Heuschrecken : 128, pl. 20 fig. 9. (? ; possibly a *Bicolorana bicolor*.)
1778. *Gryllus Tettigonia albo-punctatus* Goeze, *Ent. Beytr.* **2** : 89. (?; refers to Roesel, 1749.)
1822. *Locusta roeselii* Hagenbach, *Symb. Faun. Ins. Helv.* : 39, fig. 24.
1825. *Locusta brevipennis* Charpentier, *Hor. ent.* : 114. (Silesia.)
1835. *Micropteryx roeselii*: Stephens, *Ill. Brit. Ent.* **6** : 13.
1846. *Decticus sinuatus* Fischer-Waldheim, *Nouv. Mém. Soc. Imp. Nat. Moscou* **8** : 170, pl. 29 fig. 6. (Orenburg.)
1853. *Platycleis roeselii* Hagenb.: Brunner v. Wattenwyl, *Prodr. eur. Orth.* : 359. (Synonymises *brevipennis* and *sinuatus* with *roeselii*.)
1899. *Platycleis raia* Burr, *Ent. Rec.* **11** : 19 (*partim*).
1906. *Chelidoptera roeselii* Hagenb.: Kirby, *Syn. Cat. Orth.* **2** : 210.
1917. *Platycleis roeselii intermedia* Zacher, *Ent. Jahrb.* **1917** : 176.
1917. *Platycleis roeselii* var. *prisca* Zacher, *Geradfl. Deutschl.* : 233. (This and the preceding name refer to semi-macropterous specimens which do not deserve a name.)
1922. *Metrioptera roeselii* (Hagenb.): Chopard, *Faune de France* **3** : 84, 59, figs. 194–196, 199, 202.
1924. *Metrioptera roeselii* (Hag.): Uvarov, *Trans. ent. Soc. Lond.* **1923** : 532. (Synonymises *raia* Burr *partim* with *roeselii*.)
1939. *Metrioptera roeselii* Hgb.: Ramme, *Mitt. zool. Mus. Berlin* **24** : 116, figs. 42 r, r_1, 43r, r_1.

Type Locality. Basle, Switzerland.

Distribution. Spain, France, England, central, east and south-east Europe, Mugadshary (southern Ural Mts.), Tomsk, Siberia.

Remarks. Hagenbach's description of *Locusta roeselii* is unmistakable. He refers to the black veins on the shortened elytra, to the yellow edge of the pronotum and to other distinctive features which exclude similar species, especially *Bicolorana bicolor*. No doubt has ever been raised regarding the identity of *R. roeselii*.

When naming the species after Roesel, however, Hagenbach had in mind the latter's figure (1749, pl. 20 fig. 9) which represents a green, short-winged Decticine. This figure represents either *R. roeselii*, or *B. bicolor* (for details, see p. 26), and has been mistaken by Charpentier (1825 : 115) and others for *P. grisea* Fabr.

The question has to be considered whether Goeze's name *albopunctata*, given for Roesel's fig. 9, should be used for one of the two species *roeselii* or *bicolor*. General shape and coloration agree with either species, but the subgenital plate, which is very typical, is not visible in Roesel's figure. An arbitrary identification of the figure with either *roeselii* or *bicolor* would save Goeze's indeterminate name, with the result that general confusion would be caused, since Kirby erroneously applied *albopunctata* Goeze to another frequent species, *Platycleis grisea* (Fabr.). The suggestion to invalidate the name *albo-punctatus* Goeze, therefore, has been submitted to the International Commission on Zoological Nomenclature.

* 1b. *Roeseliana roeselii* f. *diluta* (Charp.).

1825. *Locusta diluta* Charpentier, *Hor. ent.* : 116.
1840. *Decticus diluta* : Herrich-Schäffer, *Nomencl. Ent.* **2** : 12.
1840. *Decticus pellucida* Herrich-Schäffer, *Nomencl. Ent.* **2** : 12.
1852. *Platycleis brevipennis diluta* Charp. : Fieber, *Lotos* **3** : 152. (Synonymises *pellucidus* with *diluta*.)
1882. *Platycleis roeselii* var. *macroptera* : Brunner v. Wattenwyl, *Prodr. eur. Orth.* : 359. (This was not intended to be a name, but is merely a descriptive term.)

Type Locality. Switzerland.
Distribution. Throughout the area of the species, rare.
Remarks. Macropterous form.

* 2. *Roeseliana pylnovi* (Uv.).

P 1924. *Metrioptera pylnovi* Uvarov, *Trans. ent. Soc. Lond.* **1923** : 534, pl. 28 figs. 3, 31, 32.
1932. *Metrioptera* (in sp.) *fedtschenkoi* Sauss. : Tarbinsky, *Bull. Leningrad Inst. contr. Farm For. Pests* **2** : 192. (Identifies *pylnovi* with *fedtschenkoi*.)
1939. *Metrioptera pylnovi* Uv. : Ramme, *Mitt. zool. Mus. Berlin* **24** : 117, figs. 42p, 43p, 44p.

Type Locality. Bakuriani, Caucasus.
Distribution. Caucasus, Transcaucasia.
Remarks. This species appears to have been misidentified frequently, compare Ramme, 1939.

* 3. *Roeseliana ambitiosa* (Uv.).

H 1924. *Metrioptera ambitiosa* Uvarov, *Trans. ent. Soc. Lond.* **1923** : 533, pl. 28 figs. 28, 29, 30.
1939. *Metrioptera ambitiosa* Uv. : Ramme, *Mitt. zool. Mus. Berlin* **24** : 119, figs. 42a, 43a, 44a.

Type Locality. Hortiak plateau, Macedonia.
Distribution. Macedonia, Bulgaria.

4. *Roeseliana bispina* (Bol.), fig. 29.

1899. *Platycleis roeseli* Hagenb. var. *bispina* Bolivar, *Ann. Soc. ent. Belg.* **43** : 602.
1901. *Platycleis pulchra* Werner, *Sitzb. k. Akad. Wiss. Wien* **110** : 295, pl. 2 fig. 9. (Cordelium near Smyrna.)
1926. *Metrioptera pulchra* Werner : Ramme, *Deuts. ent. Z.* **1926** : 289.
1939. *Metrioptera bispina* (J. Bol.) : Ramme, *Mitt. zool. Mus. Berlin* **24** : 119, figs. 42b, 43b, 44b, 45. (Synonymises *pulchra* with *bispina*.)

Type Locality. Marach, Asia Minor.
Distribution. Asia Minor, European Turkey, Macedonia.

* 5. *Roeseliana azami* (Fin.).

1892. *Platycleis azami* Finot, *Bull. Soc. ent. Fr.* **61** : 35.
1899. *Platycleis azami* Finot : Azam, *Bull. Soc. Ét. sci. arch. Draguignan* **1899** : 12.
1901. *Platycleis azami* Finot : Finot, *Misc. ent.* **9** : 159.
1922. *Metrioptera azami* (Finot) : Chopard, *Faune de France* **3** : 85, 56, figs. 178, 180, 181.

Type Locality. Between Cogolin and La Foux, Var, south France.
Remarks. I have been able to examine specimens from the type locality, thanks to Dr. Chopard's kindness.

6. *Roeseliana fedtschenkoi* (Sauss.).

1874. *Decticus fedtschenkoi* Saussure, *Izv. Imp. Obšč. Ljub. Estestv.* (*antrop., etnogr.*) **11** : 45. (Pl. 2 fig. 17 referred to, but not published.)
1907. *Platycleis fedtschenkoi* Sauss. : Stschelkanovzev, *Annu. Mus. zool. Acad. Sci. St. Pétersb.* **12** : 383.

1932. *Metrioptera* (in sp.) *fedtschenkoi* Sauss.: Tarbinsky, *Bull. Leningrad Inst. contr. Farm For. Pests* **2** : 192. (Identifies *pylnovi* with *fedtschenkoi*.)
1939. *Metrioptera fedtschenkoi* Sauss.: Ramme, *Mitt. zool. Mus. Berlin* **24** : 120.

Type Locality. Samarkand, Turkestan.
Remarks. Tentatively placed here.

7. *Roeseliana oporina* (Bol.).

1887. *Platycleis oporina* Bolivar, *An. Soc. Esp. Hist. nat.* **16** : 108.

Type Locality. Uclés (Cuenca, Spain).
Remarks. Compared with *R. roeselii*. Related to, or identical with, *R. azami* ?.

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